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RELATIONS OF CHEMISTRY TO PUBLIC HEALTH.*

By H. W. Wiley, M.D.
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The remarkable progress in sanitation which the last century has witnessed has been due largely to the progress of science. While it is customary to associate all reforms in sanitation with the medical profession, it cannot be denied that the ability which the medical profession has shown in sanitary matters has been largely due to the position which scientific studies hold in medical education. While all sciences have contributed more or less to this progress, there is one which stands out prominently as a controlling factor, namely, the science of chemistry. Intimately associated with this science, and as a part of it, must be reckoned bacteriology. The mere study of bacteria of all kinds in regard to their life relations has little to do with sanitation. It is the bacterium as a chemical re-agent which the sanitary expert must deal with.

It is the purpose of this address to set forth briefly some of the points in which the science of chemistry touches the public health. Although the science of statistics is not as exact as that of many others, yet from the best evidence at hand, it is believed that the average of human life is considerably greater than it was a century or even a half-century ago. This increase in the length of life is certainly not due to any additional vitality in the organism, but results solely from the improvements in sanitation which the century has witnessed. These improvements may be grouped together as pure air, pure food, pure drugs, and greater immunity from contagious and enzymic diseases. In securing all these improvements chemistry has been an active factor In regard to pure air, chemistry has pointed out the sources of contamination, especially in the neighborhood of large cities, to which the air is subject, and devised means for their suppression. Especially in large manufacturing and metallurgical centers, where immense volumes of noxious gases are poured into the air, unless special precautions are taken, grave injury to public health may result. Chemistry has shown how these gases can be almost completely oxidized, since in many cases more perfect oxidation produces a more harmless product. For instance, it might be cited that when carbon is burned with an insufficient supply of oxygen one of the products of combustion is carbon monoxide, a gas which is far more injurious to health than the complete product of combustion, namely, CO_2. On the other hand, it is known that some of the higher forms are more noxious than the lower forms, as, for instance, sulfuric and nitric acids. In these cases science has pointed to the way of condensing and recovering these bodies for economical purposes, and thus freeing the air from their presence. If the products of combustion are noxious and useless for technical purposes science has pointed to the method of conveying them high above human habitation by means of tall chimneys, and thus discharging them into the air at an altitude which practically neutralizes their harmful effects. If we look for a moment at the air of private and public buildings, we find that science has made an immense improvement in ventilation, thus insuring a purer air. The problem of ventilation relates not only to securing and removing the products of respiration or of combustion in domestic heating apparatus, but also to introducing fresh portions of pure air for the purpose of effecting those changes in the atmosphere of a room which are necessary to perfect ventilation. The problem here is both a physical and a chemical one, and physics and chemistry combine to solve it. It must be admitted that our architects have not made full use of the scientific data which are at their disposal in the way of ventilation in both private and public buildings. Architecture, unfortunately, for the science of sanitation, is still almost wholly a science for effect and utility and not for sanitary purposes. It is not uncommon even at the present day to see public buildings which have no better facilities for ventilation than those which were erected 500 years ago. The thought is almost unavoidable that our schools of architecture give too little prominence to sanitary engineering in which chemistry plays a most important part. The architect must understand the chemical impurities he has to deal with in order to thoroughly comprehend the necessities of ventilating appliances. It may be that the effluvia emitted from the human lung are not poisonous. It may be that a certain increase in the moisture and carbon dioxid in the atmosphere can be permitted without seriously impairing health. This, however, does not in any way excuse faulty methods of ventilation either in the dwelling house or in a hall for public assembly. The lungs are perhaps the most difficult organs to be reached by the physician or surgeon, and hence any impairment of their tissue can be remedied only by nature herself, very seldom by the surgeon or pharmacist. Hence the imperative necessity of protecting the lung substances from any possible injury by reason of the impurities of the air. I admit that the chemist has little reason to boast in respect to his knowledge of the composition of the air. With all the resources of chemical science, it is only within a few years that the air was known to contain very important constituents which up to that time had been wholly overlooked. The spectres of argon, neon, crypton and xenon materialize to-day to mock the pride of all modern chemists. They were allowed to stand undetected as constituents of the atmosphere from time immemorial until less than a decade ago.

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*Read before the Hundred Year Club, Dec. 11, 1902.

Many of the impurities of the air reveal themselves by their odor, so that steps can be taken at once for their removal. Many of them, however, such as carbon dioxid, are odorless, and their effect is only revealed by the results of their action upon the respiratory apparatus. Even the sonorous somnolence which often surrounds a devout preacher is not always due to that feeling of security which comes from the consciousness of correct theological notions, nor is it wholly the result of the ponderous periods of the preacher. It is only too often due to the presence of carbon dioxid in the atmosphere produced by the metabolism of the human body and exuded through the membranes of the lungs.

Pure water is without doubt more difficult to secure than pure air, and, unfortunately, the impurities which water contains are more deadly in their character than those which pervade the atmosphere. The sources of contamination in our water supply are so universal and so numerous as to defy even the highest skill of the engineer and the chemist. All the water which comes to us has been raised in vapor into the atmosphere and in this condition is practically pure. In descending from the clouds, however, after condensing into a liquid state, the water dissolves practically all the impurities which the air may contain. Thus we have paid for the purity of the atmosphere by the impurity of the water. When the descending flood reaches the surface of the earth it encounters even greater dangers there. It meets with every kind of contamination possible due to the excretion and decay of animals and vegetables. Water has been called the universal solvent, and hence it tends to carry everything it touches upon the surface into solution. If the surface water be collected for use it is nearly always dangerously contaminated. If, however, it filters through the earth and finally appears as spring or well water, it loses much of its organic impurity, but becomes saturated with inorganic impurities. Thus, whatever course the water takes when it comes to the consumer it is never pure water. In fact, absolutely pure water is difficult to secure even under the supervision of an expert chemist. There are many forms of impurity of water which are not considered harmful unless they exist in large quantities. Water as it comes through the air and percolates through the earth is usually highly charged with carbon dioxid, and this increases its solvent action on many mineral substances. Thus spring, well and river waters universally contain certain quantities of lime, iron, some magnesia, a little silica, and even traces of alumina as well as many other mineral substances. Either because these bodies are so universal in water or because they have no injurious effect, small quantities of them are not considered hurtful, but in excessive quantities their effects upon the system, especially from long-continued use, may be very serious. It is to chemistry that we owe the determination of the nature and amount of both organic and inorganic impurities in the water. The organic impurities are considered more dangerous to health, not because always of their nature which may be harmless enough, but because of the suspicion or perhaps the certainty of contamination to which the sample may have been subjected. It is needless to add that the chemist is powerless to detect the presence of pathogenic germs in water. For this purpose he must call to his aid the bacteriologist, skilled in the use of the microscope. Even then it is not always possible by the appearance or the life history of the germ to determine its pathogenic nature. To this end, actual injections of the germ into the living animal tissue must be made, or the results of its action upon the blood be determined. In this case the chemist and bacteriologist collaborate in studying both the morphology of the germ and the chemical changes which it produces. The studies of the immortal Pasteur have shown how water may be freed almost entirely from dangerous organisms, since these organisms will not pass through pores which will allow the water to permeate. He also established the principles of sterilization by heat through which not only the germs which are present in water, but by repetition, of the process, the spores which generate them, may be destroyed. As a result of all these chemical and bacteriological investigations, the water supply of all the cities in the world almost is now very much superior to that obtained in earlier times, and in those cities which are still behind the age, such as the capital of our country, which drinks the unadulterated sediment of the Potomac, steps are in progress for the construction of vast filtering beds to free the water not only from the silt which it carries, but also from the germs which it nourishes. There is widespread belief among the medical fraternity and sanitarians that a very large percentage of the typhoid fever of the world arises from the typhoid bacillus which is carried in the water. When we consider the high death rate of this disease and its almost universal prevalence, the benefit which would come to public health by its eradication is easily appreciated. To this end every effort which chemistry and other branches of sanitary science make to secure pure water should be heartily seconded by the public.

Pure food is the third in our category of those products in which chemistry touches closely the public health. Good nutrition is the essence of good health, and good nutrition is impossible with impure foods. This part of the subject has been so thoroughly discussed on many occasions that I shall dwell upon it here very briefly. Foods should be true to name, of good quality and unadulterated. They should contain no added injurious substances to interfere with digestion or prevent assimilation. They should be brought to the consumer in good condition, undecayed and untainted. It is not for any one person to say just what should go in foods and what should not, but it is important that their composition be determined by careful chemical and physiological experiments. In the matter of foods we must not forget that idiosyncrasy plays a very important part. There are many individuals that differ from the average in many ways, and especially in regard to diets which may be harmful to them, but which are perfectly palatable and harmless to the public at large. But when we come to consider the substances which are so commonly added to foods, those substances which are added as condiments, preservatives and coloring matters, or to cheapen the price or increase the weight, we have a very difficult proposition to consider. All such, unless known to the purchaser and consumer, must be regarded as fraudulent, whether harmful to health or not. Even if it should be proved that some of these substances are harmless, their use in foods should be prevented, unless the purchaser and consumer are informed of their presence. It may be that some preservatives are not harmful, and that people in ordinary health can eat them in the quantities which they are found in foods without detriment. At the same time, to infants and invalids, and persons suffering from idiosyncrasy, these substances might prove hurtful or even poisonous. Thus it seems that the only safe ground is one of general prohibition, or else the use of a label giving the nature and the quantity of the added substances. I cannot see that the sanitary chemist can have a less pronounced opinion in regard to these matters.

In regard to the proper balancing of rations in order to secure the best nutrition the chemist renders valuable service to health. As a rule, we can trust the taste and demands of the appetite in a general way to secure appropriate quantities of the great classes of nutrients into which foods are divided, namely, nitrogenous, carbohydrates, hydrocarbons and condimental. But these natural means of securing properly balanced rations can be ably supplemented by chemical analysis. A study of nutrition, which is essentially a chemical problem, has revealed the proper proportions into which these great classes of foods should be mingled in order to produce the best results. If to the aid of the taste and the demands of the appetite can be brought the help of the chemist, all the needs of the body will be better served and the general public health promoted.

The fourth way in which chemistry promotes public health is found in its contributions to prophylactic medicine. Since the immortal discovery of Jenner it has been known that the ravages of disease can be diminished, or even prevented, by appropriate preliminary treatment. The fact that such a disease as smallpox can be so modified by previous inoculation as to be practically harmless, has led to the belief that other contagious or enzymic diseases may be likewise controlled. Little progress, however, was made in this line until the epoch-making researches of Pasteur showed the scientific base on which prophylaxis must rest. So rapid has been the progress in the last few years in this line of research that we may confidently look forward in the near future to a practical immunity from those awful scourges and plagues which have so frequently decimated the population of the earth in years gone by. It has long been known, even before the days of Jenner, that an attack of a disease of a certain kind left the system practically immune. The same person does not often twice have smallpox, typhoid fever, measles, whooping-cough, nor scarlet fever. It is therefore, evident that some pronounced change takes place in the human organism as the result of a disease of this kind. This change is not of such a nature as to interfere with the healthy functions of the body, while at the same time, it is pronounced enough to render it insensible to an attack of the germs or the organisms which produce the diseases mentioned above. Since it is commonly agreed that these diseases are produced by bacteria or organisms of some kind, it is evident that immunity must result from some condition of the blood or some fluid of the body which renders it bactericidal. It is probably the blood which possesses these properties. In fact, it may be stated that the blood always contains more or less of those bodies which are called bacteriolysins. For it is well known that of a dozen persons who are exposed to the same infection perhaps only one will fall a victim to the disease, while the others escape. The thought, therefore, comes very naturally to the chemist, that if these germ-killing bodies could be produced in one animal, they might be injected into the blood of another and thus render the second animal more immune to the disease. This is the underlying principle of the whole theory of serum production for inoculative purposes. The bodies thus produced are, in common language, called antitoxins, on the supposition that they have the properties of neutralizing the poison which produces disease. Thus the blood of a perfectly immune person is both antitoxic and antibacterial. The practical results which these theories have led to are beautifully illustrated in the production of antitoxins for the prevention and cure of hydrophobia, diphtheria and other diseases. The whole world is looking forward with expectancy to the speedy development of some antitoxin or bacteriolysin which will rid the world of that most awful and destructive disease, consumption. There is every scientific reason for the belief that the skill of the chemist will be able at some not remote time to discover a practically satisfactory remedy or rather prophylaxis for this dreaded disease.

Perhaps it might be well to add here that there are two kinds of immunization, namely, protective and curative. When inoculation is practised, as for instance, in vaccination, we have a type of the preventive immunization. On the other hand, when inoculation is practised after a disease has been established, as in the case of diphtheria or snake bite, we have an example of curative immunization. There is still another kind of immunity which seems to stand midway between the two types mentioned, namely, the inoculation after a toxin has been introduced into the blood, but before it has been developed. A type of this kind of immunization is found in inoculation for rabies or hydrophobia, which is practised after the poison has been introduced into the system from the bite of a rabid animal. In all these cases chemistry plays a predominant part. It has shown that both the toxins and antitoxins belong to the nitrogenous group of matters. It has shown that the action, or rather the interaction, of the toxins and antitoxins is very similar to that between an acid and alkali. It has shown that not only has the blood a bactericidal action, but that this action is conditioned by the alkalinity of the blood, and further, that when, as it is said in common language, the system has been run down and is particularly susceptible to disease, the alkalinity of the blood is diminished in proportion to this susceptibility. Chemistry has shown that the serum of the blood of one animal has the property of dissolving the red corpuscles of the blood of another animal. In fact, chemistry has established the conditions of the fluids of the body which are most favorable to immunity, or, in other words, have the greatest power of killing bacteria. It has shown that the venous blood has a more vigorous bactericidal effect than the arterial, and that in cases of emergency, where toxins are rapidly diffused through the blood, as in the case of a snake bite, the antitoxins, in order to be of any effect at all, must be injected directly into the blood vessel, since if it be simply placed under the skin its diffusion is so slow as to render its effect too late for curative purposes. Finally, chemistry has lent its aid in the development of the antitoxins by the inoculation of animals with the toxins, and has established both the theory and practice of the production of antitoxins. It has shown that the antitoxins are developed as the direct result of the action of the toxins, nature, in other words, bending all her strenuous efforts to effect a remedy. Were this not the case the introduction of toxins into the blood might speedily prove fatal. Finally, chemistry has established the true theory of immunization which is based upon the assumption that when an antitoxin has been once developed in the blood it remains therein in sufficient quantities to render the subject thereafter practically immune to the effect of the corresponding toxin. I would like to emphasize, if I could, the important contributions which chemistry has made to this great problem of immunization. Truly scientific men have to-day entirely discarded the idea of the so-called vital force, that is, of the existence of a force of any kind in living bodies which is not wholly explicable by the principles of physical and chemical action. The fact that the laws which condition these so-called vital processes are not known with absolute definiteness is no reason whatever for supposing that they do not exist. Many of the products of so-called vital activity have, in the last few years, been shown to be the results of chemical activity. For instance, the production of sugar was supposed, a few years ago, to be a vital function existing in marked power in certain plants and being a characteristic of all plant life, and to a less degree it was known that sugar was produced by the normal functional activity of the animal, and in large quantities in certain abnormal functions. It was said, therefore, that sugar was a product of vital activity. But now we know that sugar can be formed by purely synthetic processes. The body which is most vital in these processes is the molecule into which nitrogen enters, forming a substance called protein in some of its various forms. Thanks to the researches especially of Chittenden and his assistants, great light has been thrown in the past few years on the composition of the protein molecule. It is the most complex substance existing in living tissues, being composed often of five or even six kinds of matter. Those which are always present are hydrogen, oxygen, nitrogen and sulfur. Phosphorus is also a very common constituent of some forms of protein matter. It is evident that the complexity of this molecule is almost illimitable, and hence the difficulty in determining all the laws governing its chemical composition and decomposition; but there is no doubt that when these laws are discovered it will be found that the molecule of protein matter is not constructed by any mysterious vital force beyond the province of physical and chemical laws, but is as much a pure chemical product as the far more simple sugar molecule.

Chemistry has also illustrated in the last few years a remarkable development of one of its branches, namely, physical chemistry. This branch of the science has shown that in certain solutions of a very dilute nature molecules are, to a certain extent, dissociated and their positive and negative elements, from an electrical point of view, exist separately as so-called ions. Now, no one has ever seen an ion any more than any one has ever seen an atom or a molecule, and yet the theory of ionic action explains many phenomena, just as the atomic theory is a frame work on which all theoretical chemistry is built. These ions have a distinct chemical activity due to opposite electric conditions. At least it is convenient to ascribe these different conditions to different electric states.

Physiological chemistry has shown that the beating of the heart is largely due to the presence of dilute saline solutions in the blood and it is probable, although not absolutely demonstrated, that these saline bodies exist in an ionic state. Common salt is one of the bodies which has thus been shown by chemistry to exert most important physiological actions. In fact, Professor Loeb has boldly asserted that in certain low forms of life the processes of fertilization of the female egg can take place without the presence of the male element if the proper saline conditions be secured. This theory is so bold and so contrary to all experience that it cannot be accepted as absolutely true until further corroborative investigations have been made. But it seems that we have now gone far enough to justify us in stating more positively than could be done even two years ago, the probability that all vital functions are conditioned on chemical principles.

Two years ago in an address on "The Dignity of Chemistry" delivered on the occasion of the celebration of the 25th anniversary of the founding of the American Chemical Society, I said:

"Whatever may be the branch of the profession which the chemist may pursue, he should not be indifferent to feelings of justifiable pride which come to him when he realizes all that our science has done for humanity. The disciples of evolution may have attached some opprobium to the epithet, but the chemist is the 'connecting link' between the world of matter and mankind. We stand the nearest of all our brethren to the ultimate constitution of things, so near, in fact, that we almost tremble at the thought that by some subtile synthesis we may yet strike the spark of organic life. Of one thing at least we may feel sure. We know best of all our brethren the environment of development and growth. We may never create an environment which will make autogenesis possible, but we can surely soften some of the harder conditions of existence. To be so near the first forms of life, to be so nearly in touch with the ultimate secrets of nature, are facts which show some of the principal elements of the dignity of chemistry."

If the theory of Loeb should prove true the prophecy above outlined will have realized a speedy fulfillment. This brief outline of the points in which chemistry touches sanitary science would be incomplete without some reference to its service to pharmacy and to drug control. Whatever may be the school of medicine to which we belong, with the possible exception of the medical practice of the Christian Scientists, we recognize the value of remedies administered internally and externally. While we freely admit the great abuses to which remedies for internal exhibition have been subjected yet even the most skeptical cannot but admit the specific and tonic effects of many medicines. The drugs of this character may be in some cases compared with antitoxins, freeing the system from injurious organisms, and leaving it in a condition to rebuild to their original strength the weakened tissues. I will not take your time to enumerate many of these specific remedies, but may mention quinia as a type of them. In the ranks of tonics are found many remedies whose effects in building up the system are well known. Some of these belong to the heroic class, such as nitro-glycerin and strychnia. Others are more of the nature of foods or nourishing substances such as alcohol; but whatever their character, they owe their discovery to the science of chemistry. Consider for a moment the benefits which anesthetics have conferred upon humanity! Think of the freedom from pain which they have secured, and ponder for a moment on the possibilities of surgery which they have provided! Delicate surgical operation upon vital viscera such as the brain and abdominal organs, would be utterly impossible were it not for the stillness and relaxation of the muscles and tissues produced by the anesthetics. There is not a year that the science of chemistry does not add new and valuable remedies to the pharmacopeia, while at the same time it establishes standards of purity which the pharmacists and druggists follow either by reason of legislation or from the force of public opinion. Take out of the materia medica the contributions which chemistry has made to it and the whole science of healing based on remedial compounds would be destroyed. It is thus seen that there is no other one science, possibly excluding anatomy, which has so vital a relation to the medical profession, as chemistry. I did not mention physiology in connection with anatomy because we have seen already that physiology without its chemical part is at the present day practically no science at all. It is not difficult to see, therefore, how sanitary chemistry, which is that branch of the profession I have been considering on this occasion, is intimately related to the public welfare. It has not in the past received the attention which its merits demand, but we are glad to know that at the present time, by reason of awakened public opinion and by private and public munificence, ample provision is making in all our great centers of education to properly study this most important adjunct of medical practice. In the Washington Post-graduate Medical School, which has just been established at the National Capitol, a special school of sanitary chemistry has been established where those holding an M.D. degree may perfect themselves in the theory and practice of sanitary science as illustrated in its chemical development. In future research along these lines of investigation are to be found still greater boons to suffering humanity and especially in conjunction with other sciences allied to sanitation. May we not expect in the near future that many of the scourges to which humanity is subject, such as tuberculosis and typhoid fever, may be practically annihilated? In this case we will see a still farther increase in the average length of human life and a distinct advance towards the ideal of the "hundred years" to which this club is looking.

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THE philosophers who prate about "returning to Nature," living "according to Nature" and so on, are amusing chaps. Who is Nature, anyway? A bungler, a novice, a child in the hands of Art. For particulars see that chicken-fattening house which has just begun business in Newton, Kan., with a capacity of 5,000 chickens. "By a new process an instrument will be used for forcing prepared food down the throats of the chickens," thereby adding three pounds to each fowl in three weeks. Nature be hanged! If we depended on Nature what should we do for pâté de foie gras?—*The Sun.*

HYGIENIC TREATMENT OF TUBERCULOSIS.*

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IT is not my intention to enter into full particulars of the subject in this essay, as this would fill a small book. But being confined to limited time and space I shall simply mention a few of the most salient points in the description of the hygienic treatment of tuberculosis. In the paper read before this Society a year ago I gave the result of my personal observation as to the prevention of tuberculosis. Although fearfully, and in some instances discourteously criticised by the lay press and some medical journals, I am not frightened, but shall continue to give utterance to my interpretation of what I have observed, even though it may not always agree with the generally accepted theory that may happen to be vogue just at the present time. I have lived long enough to see the rise, growth, popularity, decay and death of more than one theory and mode of practice concerning the etiology and treatment of certain diseases. We are captivated by a new explanation of known phenomena, which seems so plausible that we would be willing to swear by it, and would stigmatize our colleague who would doubt it as behind the times. But after a while a change comes over the spirit of our dream. The new theory, which has held our minds enthralled, fades out in the light of new discoveries, whether these be facts, hypotheses, or simply different interpretations of what was known before. It is not, however, my intention to combat or throw doubt upon any theory, or upon the generally accepted interpretation of some newly discovered facts; but simply to throw out a few commonplace, and, I may add, common sense, hints as to the hygienic management of this widespread, destructive and devastating disease, tuberculosis, sometimes designated as the Great White Plague.

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*Read before the State Med. Soc. of W. Va.

Tuberculosis, or consumption, is, by many physicians, confined to the lungs; and to their minds, if you call a case tuberculosis where the lungs are little or not at all affected, you have made a mistake in diagnosis. This, however, is not true; for almost every part of the body is subject to tubercular affections. The meninges of the brain, the brain itself; the spinal cord, with its nervous ramifications; the glandular system, the entire alimentary canal from the pharynx to the rectum; the respiratory apparatus from the larynx throughout the lungs; the vascular system from the heart through the great ramification of blood vessels; the urinary apparatus, kidneys, ureters, bladder and urethra; the integument, inclosing the entire body with its system of sudoriferous glands and ducts; which is of as great importance to the body as the bark is to a tree. In short, every part of the body is subject to the attacks of this wearing, exhausting, all-destroying enemy. I have asserted that drugs are of little avail. My own practice, and a close observation of the practice of others, have convinced me of this fact. Much has been said in favor of cod liver oil as almost a specific; but if you follow the clinical history of those who were supposed to have been benefited by its use, many were sent away from home to a more congenial climate, where, by the breathing of the ozone-laden atmosphere their powers of assimilation would be improved and the cod liver oil, along with other food would be converted into tissue.

It has been asserted, and I believe it to be true, that greater progress has been made in gaining the control of this disease within the last few decades than in centuries before. Thirty or forty years ago tuberculosis was regarded as utterly incurable, even in the young. Now, many children recover, and even many youths who have not advanced too far in the wasting process. But what is the reason of this improvement? Is it because specific drugs have been discovered that will drive off or kill the germs of this dread malady? Investigation will show that such is not the case. Many preparations have been invented that are said to do the work of digestion and assimilation, in which consumptives are notably deficient. But experience has shown that they are founded more on theory than on fact. They have all been tried by many of the most careful observers. But one by one they have been dropped and relegated to oblivion. Now and then some enterprising manufacturer gets up these preparations in a new form, fills the doctor's tables with samples and with literature to explain their efficacy and their wonderful virtues. Some lie there until they are too old to use, and wander to the waste basket; while others are tried and finally discarded, because they fail to do what is promised for them. It is true, some drugs have to be given to alleviate pain and to modify unpleasant symptoms, but such as deserve the name of specifics are very few, and for tuberculosis I cannot recall a single one that has maintained itself. The intelligent and conscientious physician will refrain from administering drugs of doubtful value, and especially such as may be injurious. He will rely principally on hygienic regulations, and on such remedies as nature furnishes—sunlight and heat, pure air, charged heavily with ozone; pure water, cleansed as much as possible from deadly germs. Tuberculosis is a disease of debility, in which nature fails to do her work as it should be done. The food taken does not act as nutriment. Digestion and assimilation are imperfect, and the body is either emaciated or abounds in abnormal tissue. It is generally taught now that it is a specific disease, caused by the entrance of a special bacillus. While this is undoubtedly true of many diseases, which fact has been well established by experiment, I very seriously doubt that this explanation will account for many of the facts of this disease. I have been severely criticised and called a fool for this way of thinking by a very prominent specialist and editor; and another, who, after making nearly 700 microscopical examinations in this line, expressed a disbelief in the bacillar theory of tuberculosis, was called an ignoramus by the same editor. This, however, has not changed my views, and, although not disposed to argue the question in this paper, I venture the prediction that in less than a quarter of a century such a change will have taken place in the teachings of the profession on this subject that the crude notions for which I was ridiculed last year will approach nearer the accepted theory of that time than is taught now.

Thirty years ago I asserted that there is a close affinity between electricity, nerve-fluid and vital force, and predicted that in the near future electricity would play a very important part in the practice of medicine, and would become one of the most important therapeutic agents. I was ridiculed and called a visionary. Now, look around you and see what is taking place and how near my prediction is being fulfilled. The profession is gradually approaching the doctrine of the affinity between electricity and vital force. You hear everywhere about the wonderful efficacy of ozone in increasing the vital force.

Now, what is ozone? It is electrified oxygen that constitutes what, in common parlance, is called a bracing atmosphere. Here, the weakly, delicate individual, who, either because of poor health, or in consequence of a sedentary occupation, or restrained by inconsiderate parents, has been confined to the house, breathing the vitiated atmosphere, when permitted to leave the confined room in which he has merely vegetated, eagerly inhales the ozone-laden air, heaves his chest in his eager desire to get the largest possible dose of the life-giving fluid, regains for the time being a healthy color, brightness of the eyes and renewed vigor. The blood begins to circulate more rapidly through the body, the nerves are aroused and stimulate the muscles to action; they again react on the circulation; all the vital processes are stimulated and the former invalid begins to exhibit symptoms of returning health. Unfortunately, in most cases this delightful improvement is interrupted by the return of the patient to his former mode of life. It is now beginning to dawn upon the more progressive of the medical fraternity that electricity is a wonderful medicine, stimulating all the vital forces, improving digestion, increasing assimilation, adding to nerve force, strengthening cerebral action; in short, renewing the fading life. Now, could this be so if electricity did not possess many of the characteristics of the vital principle and were not nearly related to nerve force and to life itself?

I shall not endeavor to combat the prevailing belief that tuberculosis is an infectious disease that cannot come into existence without the entrance into the body of a special bacillus. But one thing I do assert; that it is essentially a disease of debility and of failing vitality, which condition is often inherited from parents, or remote ancestors. Now, admitting the bacillus theory, the status of heredity is not weakened; because the entrance of bacilli into the body does not necessarily cause disease; for, if the vital forces are strong, and all the organs in good working order, and in full activity, the germs will be powerless to do harm, and will be ignominiously expelled. Therefore, when the debility I have spoken of exists in childhood or early youth, which I regard as the initial stage of tuberculosis, Hygiene must step in and perform its part by strengthening the organism and enabling it to resist the onslaught of the specific germ; or, if the germs have entered, to fight them, destroy them or expel them by way of the emunctories. Now, for this purpose, what is equal to the copious inhalation of pure, fresh air, saturated with electricity in the form of ozone? Artificial electricity is good, being of great use in the treatment of this and other diseases. But it compares with natural electricity in the atmosphere about as artificial mineral waters manufactured in a pharmaceutical laboratory compare with the waters of the sanitary springs in many parts of the world, made in the great laboratory of nature. Therefore, one of the very first requisites of the treatment of patients in the initial stage of tuberculosis, the tendency to which has been inherited or induced by the ignorance and neglect of the parents or guardians, is to have them spend most of the time in the open air, away from the vitiated air of the city, the close workshop, the unhealthy tenement house, or any place where the air is confined and filled with the exhalations of crowds of people. Do not have them sit or lie down in deadly inactivity; but see that they move about as much as possible, exercising their muscular system moderately, not violently, and with frequent intervals of rest; thereby stimulating the circulation and increasing vitality without fatigue, which latter would frustrate the object of such exercises. Let them expand the chest by regular motion of the pectoral and intercostal muscles, which will enable them to take in more of the ozonized air. A portion of every day, when the weather is not too unfavorable, should be spent in this way. By the way, the patient should not be coddled and rendered more delicate by maudlin kindness; for this would only tend to frustrate the efforts to strengthen the vitality which constitutes, par excellence, the gist of hygienic treatment. Sunlight is another element in the process of improving vitality, for all life on our planet is derived from the sun. Electric light is being employed very successfully in the treatment of certain forms of tuberculosis; but it can in no wise compare with the rays of old Helios, the center of our solar system, the source of all heat and life. Do not exclude the sunlight from the dwelling, but let it illuminate and enliven every apartment that can be reached. Never mind the fading of curtains and carpets; they are of much less value than the health and life of the inmates. We can see the vitalizing power of sunlight in observing vegetables endeavoring to grow when shut up in a cellar or dark room. How weak and colorless they are, and how, when, in their slow and imperfect growth, they reach a part of the room where they can get a little light, they at once grow stronger and begin to assume their natural color. So the poor, sickly, suffering consumptive that is housed up, kept away from the air and light for fear of being overcome by those powerful agents, pines away, gets weaker and weaker, until finally the light of life fades out and he dies like a lamp with the oil exhausted. But, perhaps, this same individual, if permitted to enjoy the benefits of the great fountain of light and to inhale the life-giving current of ozone-laden air, expanding the chest and taking in the vital draught that quickens the dying energies and frequently rescues death's victim from the fell destroyer's grasp, may rally from his weakness and still continue to enjoy the blessings of this beautiful world. Yet we must be careful to avoid extremes, and use not even the most beneficent remedy to excess. So, when the sun sends out his deadly rays in a tropical climate, or during midsummers in the temperate zones, its force should be modified by various appliances that are available. So with the life-giving air, when it is in its wildest mood and comes as the wind storm, the cyclone or the sweeping hurricane, it must be avoided during its rage and protection be sought from its fury.

The necessity of pure water has been so extensively discussed that we need only allude to it here. Water charged with impurities interferes more or less with the satisfactory working of the entire organism, by that means rendering the body weaker and less able to withstand the attack of any disease, but more especially of tuberculosis, which is essentially a weakening disease. It clogs up the kidneys, interfering with one of the principal emunctories, causing the retention of much poisonous material which should be carried off by those organs. As a very large part of the body is water, a great deal of this element must be consumed to keep up the supply; and it is essential to the preservation of health that this should be pure. Filtration and distillation will remove filth and disease germs, but the latter also deprives it of many useful substances. Where good spring water can be had, that is not gathered by percolation from towns, cities, stables, or graveyards, it is healthier than any other water. Where river water alone is available it should be filtered, and, if possible, aerated by some process which the ingenuity of man might easily invent. When the kidneys become clogged, distilled water, hot or cold, would be very useful. But I would not advise its continual or exclusive use, because it lacks much that is essential to the process of building up, which is especially important in tuberculosis.

It is in place here to say something about the external use of water, which is important in the treatment of all diseases, but is so especially in many forms of tuberculosis. The skin should at all times be kept perfectly clean, for it is essential that the pores, the orifices of the sudoriferous ducts, be kept open to permit free diaphoresis. In addition to that, no filth should be allowed to accumulate on the surface of the body, for filth is very liable to be absorbed through the pores. If diaphoresis is interfered with the kidneys are overworked and may become diseased. Sometimes, when the skin is too much clogged up, a hot vapor bath will relieve the difficulty. Occasionally a Turkish bath should be given, which clears out much disease material that may be accumulated in the body which will pass out with the perspiration. The advantage of the Turkish bath is that, after the poison has been eliminated by the copious sweating, the system is toned up by the cool aspersion and the shower bath, and activity restored to the circulation by the rubbing and massage, thus counteracting the debility which might be increased by the profuse diaphoresis. Absolute cleanliness should be practised in health to preserve it, and in disease to assist in restoring health. This is especially necessary in tuberculosis, since it is essential that the regular action of all organs must be promoted and maintained as far as possible, and cleanliness does more toward that end than anything that can be done.

Every physician having to do with tuberculosis should be thoroughly versed in Physiology and Dietetics, for this disease is emphatically one of defective assimilation, and in order to deal with it successfully the medical attendant must be well informed in regard to every step of the process of alimentation from the first act of placing the food into the mouth, through its entire course, until the necessary part has been selected by every organ and tissue of the body, and the residue has been expelled. He should also make himself well acquainted with the constituent elements of the food to be given to his patients in order to recommend such food as contains the substances in which his patient is deficient. Unfortunately, surgery and bacteriology are such fascinating studies and subjects of thought, that these really more important branches of medical science are either skipped over entirely or only superficially learned, and in the hurry and worry of practice are frequently forgotten. The study and practice of Hygiene are coming to the front; dosing with poisonous drugs, introducing poisons into the body to fight and destroy or drive out other poisons, and removing partially diseased organs, when they might yet be saved by the employment of hygienic means, will become as unfashionable as blood letting has been for the last fifty years, and will be looked upon and spoken of as some of the vagaries of the antiquated world. There will always be some use for surgery, such as repairing accidental injuries, taking care of the victims of war, removing cancerous growths, and now and then opening the abdomen to remove some hopelessly diseased organ or tissue. besides the numerous cases of minor surgery that are constantly occurring.

Bacteriology, that beautiful science which has taken such firm hold of the medical mind as to exclude almost every other form of knowledge, but which is as yet in its infancy, having been viewed only from one side; that is its pathogenic feature, will spread its light over medical science, illuminating the mind of that great benefactor of the human race, the physician, showing the beneficent work of those minute creatures. the millions of bacteria that pervade every part of the human body, as the carriers of electricity, nerve power and vital force, which as yet is unknown, but which, in my humble opinion, will ultimately be discovered through the investigations of the great searchers after knowledge found in the medical profession. When, through the efforts of the enlightened hygienic physician, the minds of the great masses are so cleared up that they can understand and will adopt a thoroughly hygienic mode of living, not ascetic and joyless, but a life dictated by intelligence and common sense, the dosing with drugs and many of the surgical operations now so extensively practised will be relegated to the lumber room of the forgotten past. The pleasing duty of the Physician of the Future will be to instruct his clients how to live so as to be strong and vigorous; happy themselves, and in a condition to make those around them and dependent upon them, enjoy the benefits and pleasures of this beautiful world, and if unavoidable misfortune comes upon them, that they may rally from them with the least possible amount of suffering. Tuberculosis, that bugbear and terror of the world, which has been, until lately, regarded as utterly incurable, will, under the bright light of Hygiene and common sense treatment, gradually lose its hold upon life, growing weaker and weaker, allowing the body to grow healthier and stronger under the skillful hand of the intelligent physician, thoroughly instructed in Physiology and Hygiene. Then, when the body is to a great extent free from the ills and diseases which now depress its vigor and hinder its development, the mind, the thinking, intelligent part of man will be relieved from the fetters that have held it bound down to earth will be able to take loftier flights, explore more completely the arcana of nature; and men will become what they have hitherto falsely imagined themselves to be: The Masters of the World.

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All the world's a fruit basket, and the big fruit is always on top.

Fortunately for the cat, the man behind the gun can't see well in the dark.—*Chicago Daily News.*

SALINE INFUSIONS.

The blood being the principal channel which carries toxic products through the system in cases of infection, it should be our main purpose, says Dr. Alfred Gordon* to attack the poisonous agent in the blood. This gives the rationale of antitoxin treatment. Unfortunately, but few efficient antitoxins have so far been discovered; other measures tending to weaken the toxic products in the blood are therefore resorted to, such as purgation, occasional blood-letting, and, last but really first, saline infusions.

The introduction of saline infusion can be traced back to transfusion of blood as it was formerly employed in profuse hemorrhages. The method is now almost extinct, owing to the attending dangers and difficulties. It was soon found practicable to substitute for the blood an artificial fluid of similar chemical composition. This fluid, introduced into the circulation of the patient, would refill the vessels and supply the temporary substitute for lost blood.

Thus subcutaneous or intravenous injections of saline solutions have come to occupy their present important position in therapeutics. Occasional mishaps have been reported, it is true, but the technic rather than the principle was at fault. The quantity injected was frequently excessive, and abuse is no argument against use. The advantages of the method are sufficiently numerous to outweigh its drawbacks.

The field appropriated by saline infusions is large and steadily widening. Hemorrhages, whatever their source, supply the leading indication. Operative shock and diabetic coma offer frequent opportunities for using artificial serum. But an interest of its own kind attends the utilizations of saline infusions in treating infectious diseases. Cholera, of all others, but typhoid fever, pneumonia, and gastro-intestinal affections as well, have been favorably influenced by this method. The artificial serum dilutes the toxins in the blood and stimulates their active elimination along the natural channels. In gastro-intestinal disorders the saline fluid allays the cerebral irritative phenomena, and has left a brilliant record in some instances of meningitis.

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* *Therap. Gaztte,*

The author reports a case in question. The patient was a child five months old. Severe meningeal symptoms supervened in the course of a gastro-intestinal affection. Normal-salt solution was administered through an ordinary hypodermic syringe fitted to a fountain bag. Half an ounce of the fluid was allowed to flow in, and produced a noticeable change for the better. The injection was repeated and supplemented by a rectal saline enema. The child gradually recovered. Among the first effects of the infusion, an increased amount of urine passed was perhaps the most important and encouraging. The stimulating action on circulation and nervous system was also unmistakable.

The author says that when the immediate reaction of the saline infusion (elevated temperature and accelerated pulse) is insufficient, repeated infusions are indicated.

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THE RESPECTIVE MERITS OF VEGETARIANISM AND MIXED DIETS.

L. Kuttner, in the *Berliner Klinik*, discusses the respective merits of vegetarianism and mixed diets. His conclusions may be summarized as follows:

(1) That a mixed meat diet is natural and most suitable to man, because vegetable foods are more bulky, more irritating, and less assimilable; moreover, animal food stuffs produce more heat.

(2) Impartial investigation has proved that, given judicious choice and preparation, strict vegetarianism is not only sufficient to maintain condition, but even to increase weight. Successful experiments are, however, few and far between, and the subjects do not as a rule compare favorably with those who eat mixed or animal diets in their power to put on weight and resist disease.

(3) That a modified vegetarian diet (that is, one supplemented by such animal products as milk, butter, cheese, honey, and eggs) is suitable (*a*) for corpulent constipated patients deficient in intestinal activity, but it is not to be recommended in the case of young growing people with a tendency to embonpoint; (*b*) in certain cases of alcoholism; (*c*) it is followed by brilliant results in dyspepsia and intestinal affections of nervous origin; (*d*) particularly to be recommended in idiopathic neuralgias, as well as those having a gouty basis; (*e*) useful in the treatment of headaches and other disorders dependent on constipation in neurasthenic, hysterical, and epileptic patients; (*f*) as the pulse-rate is diminished under a vegetable diet, it is to be recommended in conditions of abnormal irritability of the heart (arising from emotion, excessive muscular action, sexual excitement, etc.), and in exophthalmic goiter; it is contraindicated in all conditions of heart weakness due to arterio-sclerosis, myocarditis, etc.; (*g*) a marked addition of vegetables to the diet should be considered in many cases of insomnia, nervosa, urticaria, psoriasis, and occasionally, scrofula.

(4) That to achieve a favorable result in absorption, a reasonable combination of animal and vegetable food stuffs is essential. For all healthy and for most sick persons a mixed diet (different in degree and constitution according to the patient) is to be recommended.

(5) As a guide to the arrangement of a suitable modified vegetarian diet, the following may be of value: (*a*) In weak, broken-down patients with chronic catarrhs or an inclination to ataxia of the stomach, a vegetarian diet must be gradually approached, and must be only maintained temporarily (say for six weeks); (*b*) in gastric neurasthenia, and especially in habitual constipation in patients of good physique, a vegetarian diet may be instituted less gradually, and may be maintained for a longer period. —*Public Opinion.*

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CAN THE MORPHIN ADDICT "QUIT?"

H. R. Barton, M.D., in the *National Druggist.*

To many, especially that class who have not been brought in direct contact with morphinism, the question will appear ludicrous. It is to that class I would direct the question, at the same time asking their sober, conservative consideration, for I know of no class of people more deserving of consideration, sympathy, and even legislation, than the "fiend."

There is little of importance written to guide one in his judgment of narcotic addiction, and as a consequence we are compelled to rely solely upon observation. But can he quit? Certainly not, unless assisted by antidotal remedies. Let us consider his condition. We have a case whose cortical centers are being destroyed; whose reasoning faculties are impaired; whose cunning is increased; whose loss of moral obligation is so apparent that the courts will not accept his testimony; whose whole system is surrounded by one continual peripheral irritation. Are all these physiological phenomena present without destructive influences? You have as true pathological conditions as ever existed in any recognized disease, and having pathological manifestations you have disease, and are called upon to cure it just the same as any disease recorded.

To say "just quit" is as nonsensical as to say to your case of diphtheria, just quit. No man who ever saw a narcotic patient deprived of his stimulant, without help, would doubt my statement.

First comes nervousness, an uneasy feeling, and then aching, severe pain in the epigastrium; the muscles begin to twitch, the patient is drawn up or doubled; the physical suffering becomes almost unbearable; the pulse runs from 120 to 160, a cold, clammy perspiration breaks out all over the body and the patient sinks down or thrashes round amidst hallucinations, soon followed by a collapse.

These manifestations will be apparent in nine cases out of ten. If you are skeptical, get one to let you watch him. It is nonsense to say a man can abstain from a drug, the absence of which causes such suffering. It is equally nonsensical not to recognize him as a diseased person when such pathological conditions exist. If not, then pathology and disease are not synonymous.

If the patient survives the "just quit" method, he experiences an ever-present nervous depression, a vague, void feeling, a sensation of dread just the same as in gradual reduction processes. It is a disease pure and simple, and has to be treated as such. I have talked with several hundred patients during my connection with the Anti-Narcotin Sanitarium, of St. Louis, both before treatment and after their cure, and any one who wishes to learn the truth can do so.

The above symptoms I have gathered from each individual who has tried the "quit" and gradual reduction methods, and find their histories invariably the same. If physicians would inquire into the matter more closely they would agree with me that the treatment must be entirely antidotal, and not a substitution.

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POISON OF THE TOAD.

G. Phisalix and G. Bertrand have succeeded in isolating two toxic principals from the parotid gland and skin of the common toad, *Bufo vulgaris.* Of these bufotaline, $C_{119}H_{171}O_{25}$, occurs as a transparent resin, very soluble in alcohol, chloroform and acetone; less soluble in ether or in carbon disulphide. It is precipitated from alcoholic solution on the addition of water, forming an emulsion, which is redissolved on further adding a large volume of water. Although very dilute, the solution thus obtained is extremely toxic to frogs. It acts on the heart, and does not affect the nervous system. Applied to the tongue, it has a bitter taste and gives rise to a peculiar and very persistent sensation.

It is obtained by squeezing the parotid glands of the animals under water. The opalescent acid liquid thus resulting is filtered through a Chamberland filter and evaporated. During evaporation a less soluble portion separates as a white pellicle, which is removed as it forms. It is washed with water and redissolved in absolute alcohol or in chloroform, and purified by filtration. This is bufotaline. After its removal the residual extract is exhausted with alcohol; the alcohol is distilled off, and the residue, dissolved in water, is treated with basic lead acetate. The lead precipitate, decomposed by H_2S, liberates another toxic body, bufotenine, which is purified from adherent bufotaline by treatment with chloroform in which the former is insoluble, and by ether, which removes the acetic acid. Bufotenine exerts a powerful paralysing action on the nervous centers. Faust has also isolated bufotaline, but since he worked upon the alcoholic extract of the dried skins of the animals, his product is considered by the authors to have been impure. They find that this extract contains a substance which has no relation to the toxic body. This is the body named bufonine by Faust, which does not occur in the pure secretion of the glands.

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HANDS AND THE RAVAGES OF TIME.

Hands show the ravages of time more than any other part of the body. Scientists attest the fact, and the hands of celebrated beauties prove the theory beyond argument. Between the ages of seventeen and eighteen the hand develops into the maturity of beauty and symmetry. Until almost thirty the hand, if subjected to rigid care, practically remains unchanged. At thirty an almost imperceptible change begins, and, despite constant attention, the beauty wanes. The skin wrinkles and grows dry, the joints grow shapeless and enlarged. The shrinking of the flesh displays the faults which the plumpness of youth had covered up. The fingers are no longer nimble, and the muscles begin to stiffen with increasing age. When the muscles respond tardily to the orders of the brain the first warning of departing youth is sounded. Sarah Bernhardt alone cries defiance. That wonderful woman refuses to yield one particle of her youth. The hands are still young and beautiful. There is even a suggestion of dimples in the curve of the arms. What the secret is the world will possibly never know, but Sarah's perpetual youth is nowhere so fully demonstrated as in her soft white hands and tapering fingers.

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE RELATION OF DIET TO MUSCLE.

By G. H. Patchen, M.D.
New York.

This subject has many points of view which must be considered before anything like a definite and satisfactory conclusion can be reached.

As I understand the question, it is an effort to determine what kind of diet, other things being equal, will produce the greatest muscular power and endurance.

A complete discussion of this subject would require a thorough knowledge of all of the laws and processes of nutrition, and nutrition is a very complex process, having many indispensable factors. While we do not, and, perhaps, never may, know all the secrets of nutritive processes, we are familiar with many of the most important and practical ones, and we know that there is no truth in the old adage that "the eating of a part strengthens a corresponding part." If this were true the diet of many people should consist principally of brains.

The eating of meat does not necessarily favor the growth of the muscles of the eater. Both observation and experience teach us that, in regard to nutrition and muscular development, man does not differ from the lower animals, and the animals possessing the most muscular power and endurance are, not the carnivora, but the herbivora—the grain eaters.

Muscular power does not altogether depend upon the size of the muscles through which it is expressed; the quality of the muscular make up is a factor which must be reckoned with. For, just as surely as soil of a suitable kind will produce a ripened product superior to that developed in a soil of a less favorable nature, so surely will the quality of muscular growth be affected by the kind of food from which the muscle is formed.

Another matter to be considered is the nervous force or energy behind the muscles which enables them to act, for, in reality, muscle is but an instrument through which vital power, emanating from the brain, and conveyed by the nerves, is manifested. As the power displayed by an engine varies with the amount of pressure of the steam supplied, so will the energy exerted by the muscles be greater or less according to the degree of nervous force which furnishes them with the stimulus to action. The diet, therefore, which contributes most to muscular strength and energy is that which, at the same time, contributes most to making the nerves active and strong.

Another very important law of nutrition —one which is altogether too frequently either ignorantly overlooked, or wilfully ignored, especially by all sufferers from dyspepsia—is that, physiologically, expenditures always control supplies. This is a short and simple statement, but one of vast significance. Put in another form, perhaps more easily understood, the system will not and can not digest and assimilate more food of any kind, at any time, than that for which it has a legitimate use. Any excess of this amount must be either gotten rid of at considerable cost of labor on the part of the eliminative organs, or else stored up as useless fat, which only hinders and obstructs the freedom and activity of some vital function. Hence it follows that even the food most suitable for muscular development will avail nothing unless a legitimate demand for its use is made by the part which it is designed to nourish. Herein lies the secret of the value of physical exercise for developing muscular growth and power.

Lastly, because nutrition is, largely, a chemical process, oxygen is as necessary, for nutritive purposes, as food. The service it performs is a double one. When it has entered the blood, by way of the lungs, it assists elimination by uniting with and destroying the residual, nutritive elements of food from which all vitality has been exhausted, and, at the same time, combines with fresh food supplies to convert them into new nutritive material for immediate use.

After this hasty mention of the principal factors which enter into and control nutritive action, there should be but little if any difficulty in deciding what kind of diet will best subserve the purpose indicated by our subject. In a general way it is that which contains both nitrogenous (muscle-making) and phosphatic (nerve-supplying elements in a form most easily digested and assimilated.

I have no hesitancy in expressing my belief that, independent of all sentiment in regard either to the lack of necessity or the wickedness of taking animal life, this ideal diet is one of which animal flesh forms no part.

The excessive use of meat (and in this case a very little is excessive) is the cause of a great many ills of civilized life. While easily digested as far as the stomach is concerned, the nutritive elements of meat are hard to oxidize, and its uncompleted waste products become in many ways a source of disease. Besides, as Doctor George H. Taylor has truly said, "the organism of animals whose flesh is used for food, has rejected such ingredients as are not useful for its own needs. Among such ingredients are the phosphatic salts which are demanded by the larger development and higher functional requirements of the nervous systems of man. This class of salts is not retained in the flesh of animals to an amount necessary for adequate support of nervous function of men of high intelligence and active sensibilities."

20 West 59th Street.

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DIET FOR BRAIN WORKERS.

It is all right, says a writer in *The Sanitary Record,* for a man who labors all day in the open air to eat freely; but the man of sedentary habits, the brain worker, must adapt his way of living to his needs. He must be well nourished, for his brain is incapable of good work unless well supplied with pure blood, but such a man cannot possibly furnish vital force to digest three large meals daily. If he tries it, nature will protest at every step. The chemical changes of digestion will be imperfectly performed. The stomach will neither secrete freely nor churn the food with cheerful alacrity; the pyloric orifice contracts and allows such chyme to pass with grudging reluctance; the intestinal lacteals are ashamed to absorb such miserable pabulum, which chokes, irritates and congests them, so the large meal remains in the digestive organs to ferment, putrefy, and steep the individual in foul gases and depraved secretions. But the system can furnish enough vital force to convert a small meal into pabulum of high standard, which will be absorbed without difficulty. Three such small meals are not enough to keep the individual properly nourished, however; four to six will be required. Each should consist of but one or at least two articles of food, the diet to be varied by changes at meals. The portion of food served must be small; the patient must stop as soon as the appetite is satisfied, and gaseous distention is proof positive that the meals are still too large or too close together.—*Medical Record.*

HARD AND SOFT WHEAT FLOURS.

While hard wheat flour is a most excellent bread-making flour that is in demand by many bakers and the foreign trade, because of its strength and the greater quantity of water it will absorb, the majority of the American people cling with an old-time fondness to the soft wheat flour. It is a most excellent bread-making flour, and contains to a very high degree all of the requisites for sustaining life and making and maintaining tissue. It is fully equal, when all of the points are considered, to any hard wheat flour.

The hard wheat contains more gluten than the soft, which makes it quite valuable to the human family in its line of business as a sustainer of life and strength, but otherwise it possesses no value or virtue as human food not possessed by the soft wheat.

It is this same gluten that makes the imperfect Kansas wheat of the present season appear to make better flour than the more perfect wheat of last year, but it is more apparent than real when all the factors are considered.

As indicated, hard wheat flour is considered of value not only to domestic commercial bakers, but to the foreign trade, because foreigners use baker's bread more generally than do Americans. The hard wheat flour is more valuable to that class of trade because it takes up more water and makes more loaves of bread to a given quantity of flour than does soft wheat flour. The bakers sell more water and less flour than when using soft wheat flour, and hence have, or ought to have, larger profits. As water is of but little value in making tissue and sustaining life, it is difficult to see wherein the hard wheat flour is much superior, if, indeed, in any way better than soft wheat flour for human food.

However, both are American products, both are good and both require the support of all interested in the growth of American wheat and the manufacture of American flour.—*American Miller.*

DIET IN NEURASTHENIA.

Next in importance to rest and properly regulated exercise is diet. When we consider that nearly every digestive disturbance which by failure to provide proper nourishment for the exhausted organism, together with the resultant autotoxemia, becomes one of the most important factors in the causation of the disorder, we can appreciate the importance of giving due attention to diet. The carbohydrates, as giving rise to fermentation and interfering with the digestion and assimilation of nitrogenous foods, should be avoided as much as possible. According to Brower beef, mutton and eggs should form the basis of the dietary. In addition to milk, malted milk, or a combination of the two, may be used advantageously. It will sometimes be necessary to resort to predigested foods until the digestive organs have regained their tone somewhat. Tea and coffee should be avoided entirely, not only because of their detrimental influence upon the nervous system, but because of their interference with digestion. Fluids in any quantity dilute the digestive juices and impair their action, and should, therefore, be taken at other than meal times, preferably upon rising in the morning and an hour before meals, hot water being best, to which may be added to advantage in some cases a teaspoonful of Carlsbad salts.—*Phil. Med. Journal.*

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THE FOOD VALUE OF MILK.

By Wilbet J. Fraser, Illinois Experiment Station.

Milk furnishes all the constituents necessary to nourish the body, keep it in repair, and nourish warmth and energy for work. A quart of average milk will furnish about the same amount of nutrition as three-fourths of a pound of meat; and if its true food value were fully appreciated, milk would be used much more freely than it now is, to the advantage of both the health and economical sustenance of the people. Each person consumes an average of twenty-five and a half gallons of milk in a year, or an ordinary tumblerful each day. Although this is one of the great dairy countries of the world we do not consume more than one-third the amount of milk per capita that is used in some European countries. This is doubtless due to the failure of Americans to appreciate its food value. In this country it is generally used as a condiment in tea or coffee, on berries and fruit, or for a beverage when drunk all and not as a regular article of food as are bread, meat and potatoes.

Many who understand that milk varies in composition think that its food value is based entirely upon the amount of butter-fat which it contains. While it is true that the fat in milk is a very important factor, it is also true that skim milk containing little or no fat has yet a high food value. Skim milk has practically the same composition as whole milk, with the exception of butter-fat which has been removed in the cream, and for supplying the body with albuminoids alone is worth exactly the same, quart for quart, as whole milk. Since the albuminoids are lacking in the diet of many people, especially those who do not eat meat freely, skim milk would be a valuable and economical adjunct to their food.

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BEANS A MAINSTAY.

"Beans are the soldier's mainstay," says Thomas P. Dillon, a retired United States cavalry officer. "The American soldier, at a pinch, can equal the performance of an Arab on a handful of dried dates—he can ride and fight all day on a mere handful of beans, properly prepared. There is nothing to equal the army baked bean. Your celebrated 'Boston baked' are but a poor imitation of the succulent article turned out by a regular army cook. There's an art in cooking them that nobody but an army man ever acquires. I've been on service when for a week at a time our menu consisted of beans for breakfast, beans for dinner and beans for supper; and did the troopers tire of the monotony? Not a bit of it. They sang for more, and in spite of hard work and lack of variety at mess the fellows actually got fat. That demonstrated to me the nutritive quality of beans, and I made it a point to get into the good graces of the cook and learn how to bake them. It isn't such an elaborate process, but there's a trick in doing it right. My friends are all fond of beans the way I cook them, and many a time I've been asked for the recipe, but that's a thing I don't give away to every one. You see, people enjoy a dish all the better when they know it's something that not everybody can get up. It might take some of the zest away if they could say of my beans: "I know how to make them.' "—*Philadelphia Record.*

* *

CONCENTRATED FOODS.

THERE is a prevalent idea in the profession that foods can be concentrated. This thought finds its reflection in the advertising pages of medical journals in the highly-colored claims of manufacturers of prepared foods. The three main constituents, proteid, carbohydrate, and fat, are represented by such typical examples as meat, sugar, and fat. Meats may have their water driven off and be reduced to powder form; in this way their bulk is diminished to about one-fifth their former quantity, but in order to be taken and absorbed they must have the water restored to them. Sugar is practically water-free, and represents the most concentrated form of carbohydrate available. Fats in the form of butter contain nearly 90 per cent. of carbohydrate. A greater concentration of fat than is contained in these natural products is not possible, and for the most part the manufactured-food products contain far less units of energy than do the natural products. About the only purpose for which concentrated foods are useful is in furnishing the nutriment in a more palatable form, or else, if it has been acted upon by certain digestive ferments, in such a way as to facilitate its absorption. As a matter of fact, it is rare that predigested foods are required. If a stomach is capable of passing the food on into the intestines, there is such an excess of digestive capacity in most individuals that it will be dealt with in such a way as to permit of its absorption.—*Medicine.*

* * *

BEDS AND BED COVERINGS.

WHAT constitutes a good bed and suitable covering for the night?

The answers to this conundrum could hardly be classified from boarding-house and country-hotel experiences. Some people generously try to smother or lose their guests in seas of feathers; many offer pillows small and soft enough to play hide-and-seek with the unsupported head all the night long; but the crowning atrocity is the widely prevalent attempt to substitute blankets by heavy, sodden coverlids, holding down their victims with sheer brute force of avoirdupois (like the marble slabs which disfigure the graves of many departed), causing dreams of premature burial or midnight robbery by superincumbent burglars.

IN MANY CASES

it may be a question of necessary economy, but in others it is pure meanness, or a survival from those crude days of domestic decorative art when huge, flaring patterns were the fashion, and the well-named family of "crazy quilts" came into existence to disquiet the æsthetic brain in its hours of repose. The writer commends these plaints to the proper philanthropic agencies. They voice genuine public needs, and it is deeply to be regretted that temperance reformers do not add the elements of radical reform in cooking methods to their excellent aims for humanity.

Intemperance would be shorn of half its seductive potency by an improvement all along the line of bodily nutrition.

Poorly-nourished, nerve-starved creatures have irresistible cravings for relief from bodily and mental misery.

Feed them better, clothe and warm them first, then preach morality—is the divinely ordained method of reform.

* * *

MEN AND WOMEN IN THE SICK-ROOM.

WE find this merited tribute to the constancy and tireless endurance of woman in her ministrations to the sick, in London *Health:*

It has often been remarked that in sickness there is no hand like a woman's hand, no heart like a woman's heart, and there is not. A man's breast may swell with unutterable sorrow, and apprehension may rend his mind, yet place him by the sick couch and in the shadow rather than the light of the sad lamp that watches it; let him have to count over the long, dull hours of night, and wait alone and sleepless the struggle of the gray dawn into the chamber of the suffering; let him be appointed to this ministry even for the sake of the brother of his heart, or the father of his being, and his grosser nature, even where it is most perfect, will tire; his eye will close, and his spirit grow impatient of the dreary task. Though love and anxiety remain undiminished, his mind will own to itself a creeping in of irresistible selfishness, of which, indeed, he may be ashamed, and which he may struggle to reject, but which, despite all his efforts, remains to characterize his nature, and prove, in one instance, his manly weakness. But see a mother, a sister, or a wife in this place. The woman feels no weariness, and owns no recollection of self. In silence, and in the depth of night she dwells, not only passively, but, so far as the qualified term may express our meaning, joyously. Her ear acquires a blind man's instinct, as, from time to time, it catches the slightest stir, or whisper, or breath of the now-more-than-ever-loved one who lies under the hand of human affliction. Her step, as in obedience to an impulse or a signal, would not waken a mouse; if she speaks, her accents are of a soft echo of natural harmony, most delicious to the sick man's ear, conveying all that sound can convey of pity, comfort, and devotion; and thus, night after night, she tends him like a creature sent from a higher world, when all earthly watchfulness has failed—her eye never winking, her mind never palled, her nature, that at all times is weakness, has now gained a superhuman strength and magnanimity, herself-forgotten, and her sex alone predominant.

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STUDY OF THE AMERICAN FACE.

In no sense of the word is the American face distinctive. There is nothing that will call it up in the mind from the world's group of Caucasian faces. Yet this is not true of other white-skinned races. The English face, the Jew face, the Irish face, the Italian face, the Chinese face, the Japanese face, the French face, the Indian face and even the negro face, all these have something about them which call up a definite picture in one's mind. But the American face has no strong characteristic to differentiate it from other faces of superior races, though it is peculiar in some ways. It is peculiar in its cosmopolitanism. It is in one sense a composite face. It is international, for here and there one may find the traces which suggest a relation to this, that, or the other face. It may be a line or a ligament bequeathed by an early English ancestry or something suggestive of Teutonic origin or a sharp suggestion of the Frenchman's face or the Irishman's or the Italian's or the Scotchman's. But when one must deal with the American abstractly one can scarcely call up the American face. Uncle Sam, with his striped trousers, his sharply-cut coat, his plug hat, his whiskers, and his bland, good-natured countenance, is a happy conception, yet he may never hope to portray the matchless and indescribable cosmopolitanism of the American face. It is too unique in its likeness and unlikeness. Among the home folk there are certain things which will enable one to call up a face which is probably distinctive in its Americanism, and yet it could not be accepted as the face which would correctly and adequately represent the whole race of Americans. For instance, there is what may be popularly called the Reuben face, which one may find in the rural sections of the United States, the face of the agriculturist and the farmer. There is a certain type in the remoter country sections which is probably peculiar to Uncle Sam's domain, and yet it would fall far short of representing the American face. It would only represent a small number of Americans, and while the type is thoroughly American and substantial enough in its representation, it would give no idea of the facial appearance of the vast majority of American citizens. —*London Health.*

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A TRIBUTE TO NEW YORK.

At the celebration of New York Day at the Pan-American Exposition, according to the *American Grocer,* St. Clair McKelway, of Brooklyn, began his oration by pointing out what nature had done for New York with "the Mohawk, the Genesee, the beginnings of the Delaware and of the Susquehanna; the incomparable lesser lakes, the minor mountain chains": and for a frame, the ocean, the Hudson, the Adirondacks, the St. Lawrence, Champlain, Ontario, Erie, and Niagara. After dwelling on the sturdy and tolerant character of the early settlers and the history which they made, he said:

"New York was first among the States to place her charities, her asylums, and her prisons under a control which politics cannot vitiate; the first to put her public works on business lines; the first to give to her Governor power of veto, in severalty, over items in money bills; the first to divest capital punishment of barbarity and spectacularity; the first to incorporate societies for the prevention of cruelty to children and to animals; the first to raise pharmacy, veterinary surgery, and public accountancy to the rank and to the responsibility of law-regulated professions; the first to establish a system of forest culture and preservation in the interest of agriculture, of health, and of education in the beautiful and the sublime; the first to give State recognition to the kindergartens in law, and the first to harmonize academic and collegiate instruction, under religious auspices, with the system of State supervision of secular teaching, and without violence to the Constitutional mandate separating Church and State."

* *

"ROUNDHOUSE" YOUNG MEN.

THERE are a great many young men in this country who are like engines, just completed, standing in the roundhouse, all ready to go out on the track, but waiting to be started. They have finished their education, as far as the schools are concerned; they have their college diplomas; they are polished and ready for the run, but somehow they never get out on the main line. They ought to be busy pulling trains: some of them, freight trains; some of them, local passenger trains; and still others, lightning expresses; but they do not move.

An engine may be a wonderful piece of work to look at, but, if it does not fly along the track, and take people or goods to their destination, what is it good for? Of what use are education and college diplomas to these "roundhouse" young men? Of what possible service can they be to the world if they never get started on the track? How many of them do we see lounging around clubs, or in drawing-rooms chatting with society women,—dawdling, listless nonentities, admiring themselves for their completeness, but never doing anything, never pulling a train of cars! Their lives are meaningless, and some of them are worse than useless because they are obstructing the way of the engines which are puffing steam, waiting to pull a train if the track were only clear. They have been foisted into positions through "pulls," and occupy, as mere figureheads, the places which worthy young men are waiting to fill efficiently.

These engines exist merely for themselves. They have nothing for the world; they do not wish to contribute to its work; they would feel insulted if asked to go out on the track and pull loads. But, "roundhouse" young men, do not forget that, the moment a man stops growing, he begins to decay. There is no standing still in this world; one must make up his mind either to progress or to retrograde.—*Success.*

* *

THE IDEAL FEMALE FIGURE.

"THE beauty of the female figure," says Leigh Hunt, "consists in being gently serpentine." Stiffness is utterly ungraceful. The movements of an unconscious child are the perfection of grace, they are easy, unstudied and natural. The throat should be round, and the waist should be twice the size of this "tower of ivory," not, as fashion and undue compression have too often made it, nearly the same size. The shoulders should be sloping and not too broad, neither should they be too narrow, but occupy that soft and rounded mean that is offered in Milo's Venus. The figure should be, above all, easy. The hips should be high in a woman, and wide; the feet small, but in due proportion to the height of the figure. The arm is seldom sufficiently developed in the modern woman of fashion to reach the standard of classical beauty; she does not use her limbs, and particularly her arms, sufficiently to give them the muscular growth of which they are capable. The arm should have a round and flowing outline, with no sharpness at the elbow, it should taper gently down to a small wrist. Too pronounced stoutness or thinness is to be avoided, the former by vigorous exercise and careful diet, eschewing those foods which are known as flesh forming and fat creating. Animal food is less fattening than bread, vegetables, and puddings.

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COMPLEXION HINTS.

FAMOUS beauties nearly all unite in giving testimony that a thorough steaming of the face at night is wonderfully effective in producing a clear complexion. This is done by holding the face over a bowl of hot water.

A certain amount of exercise is indispensable. Brisk morning walks, regularly taken and persistently adhered to, produce a healthy glow that defies artificial imitation.

Avoid rich and greasy foods. Though it is practically useless to tell a woman to abjure sweets, it may be suggested that they are complexion destroyers, and that the fewer one eats the fairer one's skin is likely to be.

Massage is recommended by many who have made a special study of the fine art of complexion-preserving. A gentle kneading of the face at night and in the morning makes the skin soft and healthy.

Over-frequent washing of the face should be avoided. Some physicians insist that the face should be washed but once a day, and then in tepid water. It is understood that only the purest soap should be used.

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INTERESTING RAILWAY ITEMS.

IN view of the prominence given recently in the newspapers and magazines to the supremacy of American locomotives in the world's competition this short summary of the rise and progress of this great industry in the United States is peculiarly interesting and timely: "The first American locomotive was constructed by Peter Cooper for the Baltimore & Ohio Railway in 1829. In 1832 Mr. M. W. Baldwin began the construction of locomotives in Philadelphia and his factory developed into the Baldwin Locomotive Works, now the most extensive establishment of the sort. Engines are supplied to every State in the Union, to Cuba, South America, Great Britain, Russia, France, South Germany and other States. American engines can be delivered in a shorter time after the order than any others; the parts are interchangeable; and their price is the lowest, although the wages of the workmen are the highest. The early locomotives weighed about 14 tons; by 1850 the weight rose, at times, to 50 tons; in 1870 the average weight was 40 to 45 tons. Freight engines now weigh about 100 and passenger engines about 70 to 80 tons (exclusive of the tender). The size of tenders has increased nearly four-fold in 40 years. The speed has partly increased also. The Atlantic City Express runs the 55 miles from Camden to the sea in about 45 minutes every day during the Summer. The weight of rails has increased from 30 to 50 kilos per metre, and the cars have also greatly increased in weight. While the weight of locomotives has doubled in the last 25 years the cost has increased only 40 or 50 per cent.

It is estimated that upon the railroads of this country there are in use to-day 780,000,000 cross-ties; that 112,000,000 are required annually for renewals, at a cost of $60,000,000; and that within the next two decades 3,000,000,000 ties will be required. Upon almost every railway right of way 640 catalpa trees may be grown to each mile of track, which, in 16 years, would provide 3,000 ties, enough to relay one mile of track and lasting 35 years. The tree renews itself from the trunk, and the young shoots, properly trained, would insure a permanent supply of all the wood necessary for ties, fence posts, telegraph poles and lumber. In view of the facts and the growing necessity for cheap ties the International Society of Arboriculture is making an effort to further the growing of catalpa trees, with special reference to the need of crossties for American railways. White oak has become too valuable for use in making ties; the price of canerack, white cedar, chestnut, pine and redwood has advanced; metal ties, which have been used with apparent success, are too costly at present compared to wood, and therefore the catalpa should be grown to replace other woods already disappearing. The tree grows rapidly, is tough and enduring, and in addition to being a source of supply for crossties may be so planted along the right of way of railroad lines as to add to the pleasure and comfort of travelers.

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FIRST-CLASS READING.

The man or woman who loves profitable reading, which is as entertaining and amusing as it is profitable, ought to see "Modern Eloquence." This is a work consisting of ten elegant volumes, which can be secured at a very moderate price considering the wealth of its contents and the beauty of its binding. As its name implies it consists of words of wit and wisdom from the leading orators of the time. The reputation of those who are represented in this work is such that they could not afford to give anything which was not good; and, of their good, the very best has been carefully chosen. The hundreds of subjects dealt with include all those which from time to time occupy the attention of the thoughtful. The mere enumeration of these subjects would occupy a column of this journal. To give a list of the names of the contributors would mean simply the transcribing of the most famous in arms, in arts and song, who have charmed and captivated audiences from the lecture platform, and who have been instructed and entertained by after-dinner speeches. Those who are interested in this work (which should mean all who care for really good reading) should write to the publishers, John D. Morris & Company, Chestnut St., Philadelphia, for a large and handsome portfolio, containing 11 sample, full-page photogravures and chromatic plates, and 80 specimen pages of brilliant after-dinner speeches, lectures, addresses, anecdotes, etc. This is on the principle of "Taste and Try before you Buy," and is in itself proof positive of the full confidence of the publishers in the value of the work which they are offering to the public.

In a future number of the GAZETTE we will give our readers a more adequate word concerning these exquisite volumes.

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WORTH TRYING.

PEOPLE who suffer from tired eyes—and who does not at times?—may be glad to try a French author's accidentally-discovered remedy. One night, when engaged in writing an article, his eyes gave out before he could finish and he was compelled to stop. So, turning from his unfinished manuscript, his eyes fell upon some scraps of colored silk that his wife had been using for patchwork. These gay colors had a peculiar attraction for his wearied optics. On resuming his work after gazing at them for several minutes he found them quite fresh. After several experiments he surrounded his inkstand with brilliantly-colored striped silk material that his eyes must rest on every time he dipped his pen into the ink. This brought instant relief.—*Boston Evening Transcript.*

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EMERSON'S PERSISTENT OPTIMISM.

THE contrast offered by the sunny, cheerful Sage of Concord to his gloomy, dyspeptic friend, the Sage of Chelsea, is brought into striking relief by the revival of an anecdote of Charles Kingsley's. Carlyle, it seems, had been bored by Emerson's persistent optimism, and undertook to cure him of it. "I took him," he said, "to the lowest parts of London and showed him all that was going on there. This done, I turned to him, saying: 'And noo, mon, d'ye believe in the devil noo?' 'Oh, no,' replied Emerson, 'all these people seem to me only parts of the great machine, and, on the whole, I think they are doing their work very satisfactorily.' Then," continued Carlyle, "I took him doon to the House of Commons, where they put us under the gallery. There I showed him ane chiel getting up after anither and leeing and leeing. There I turned to him and said: 'And noo, mon, d'ye believe in the deevil noo?' He made me, however, just the same answer as before, and I then gave him up in despair."—*Success.*

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Everybcdy knows that even in the best constructed engines less than 20 per cent. of the value of the coal burnt is obtained in the shape of power in the engine. *Popular Mechanics* analyzes this loss in a most interesting way. Out of every 100 pounds of coal burnt, 22 go up the chimney in gas and smoke, 5 escape in heat thrown off by the boiler, 1 pound or more drops through the grate with the ashes, 10 are used in pumping water into the boiler, and 57 are wasted on the air in the escape. Leaks and radiation from the pipes and engine waste more, until all the power actually gained is from 6 to 15 pounds of coal, with 8 as a good average.

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MEDICAL AMENITIES IN THE SEVENTEENTH CENTURY.

Dr. Geo. Cheyne, was an eminent Scottish physician and mathematician, born in 1671, settled in London, and later in Bath, where he died in 1743. He became very corpulent, but recovered health and activity on a milk and vegetable diet. Whereupon he was apostrophized by Dr. John Wynter, another well-known physician of Bath, as follows:

Tell me from whom, fat headed Scot,
Thou didst thy system learn;
From Hippocrate thou hadst it not,
Nor Celsus nor Pitcairn.

Suppose we own that milk is good,
And say the same of grass;
The one for babes is only food,
The other for an ass.

Doctor, one new prescription try,
(A friend's advice forgive,)
Eat grass, reduce thyself and die,
Thy patients then may live.

To this Dr. Cheyne replied:

My system, doctor, is my own,
No tutor I pretend;
My blunders hurt myself alone,
But yours your dearest friend.

I can't your kind prescription try,
But heartily forgive;
'Tis natural you should wish me die,
That your yourself may live.

N. Y. Med. Journal.

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, JANUARY, 1903

SOME CURES FOR BALKINESS.

WHO has not witnessed the stupidly brutal efforts of enraged drivers to "start" a balky horse? There is no defect or trick on the part of this patient animal so aggravating as this trick of balking. If it were the overworked and physically exhausted horses that practised the act it would be easier to account for the freak, and less exasperating to listen to tender-hearted lectures from tender-hearted agents of the "Society for the Prevention of," etc.; but the balky horse is almost without exception the soundest, best kept and freshest horse one could pick out among a hundred. Moreover, your balky beast is more likely to have a regular "tantrum" when first hitched up than after he has had work enough to make him want rest. The fact is, the balkiness is not in his muscles, but in his mind. There are children and grown people who balk in the same way. Generally speaking, the horse, child, man or woman that balks is a horse, child, man or woman with a touchy temper.

If there is one occasion when a balky horse is more exasperating than on any other it is when he is asked to carry a country physician, called in great haste, to an emergency case. There is usually no other animal immediately available, no time to be lost, and no patience on tap.

How to start the spunky, sulking brute in the shortest possible time is the dominant question. The whip is the readiest argument, but it has never been known to succeed, and, therefore, its use is brutal and wastes both time and temper.

Among the methods resorted to in these cases, methods that have been made to succeed by somebody "when everything else failed," a few may be mentioned:

A Kansas man who has had large experience, advises that the horse be promptly unhitched, a good rider placed on his back, and given orders to lash him into a fast gallop over the softest road—plowed ground, if available—until he is well blown or even "lathered." Then hitch him to the wagon and he will forget to balk.

Another directs that the obstinate animal be treated with the utmost kindness, patted about the neck and head,his harness or collar examined or ostensibly readjusted, and then allowed to stand quietly for a few minutes. Then, with his regular driver in the seat, lines in hand just as he ordinarily holds them, ready for an instant start, a second person picks up a handful of dust or sand from the road, and, lifting the animal's upper lip, rubs his teeth and gums briskly with the earth. Dropping the lip and stepping aside, the driver is to chirp to the beast as if nothing unusual had happened. He usually goes. In "hard cases" the dose may be made ashes, salt or even pepper, or some pungent mixture.

Another confident authority inveighs against all violent measures, beating, burning straw under the beast, etc., etc., and advises as follows:

Speak gently to the excited animal. Rub his head and pat him coaxingly and assuringly. Let him stand a few minutes. Then, having adjusted his harness, take a hammer, if one be at hand, or if not a stone will do, lift one of his forefeet and tap gently on each nail in the shoe. Finish the tapping with a smart tap on the frog. The driver, having the reins in hand and ready, chirps to the horse, and, presto, he starts! This authority claims to have tried the method in five hundred cases without experiencing a single failure.

The evident explanation of all these methods is—*diversion.*

There are numerous others, but some of them are cruel and others fail oftener than they succeed, so that it is useless to cite them.

The foregoing are all humane, and all excepting the first are unobjectionable to the most sensitive natures. None but outsiders—those who are not sitting impatiently in the waiting wagon—will object to the "warming up" (not whipping) process.

The diversion principle applies to balky humans, whether children or adults.

There are a great many balky people. They sag back in harness, won't go, and can hardly give any reason why.

Diversion is a rational remedy, but sometimes one feels like resorting to the Filipino "water cure."

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THE WARDROBE MANIA.

People go mad on all sorts of subjects—love, religion, lap dogs, horses, golf, jewelry, outlandish rugs, antique furniture, old books, rare editions, postage-stamp collections, autographs, Christian Science, spiritism, hypnotism, music, quackery, roulette, the races, politics, society fads, and what not?

One of the latest freaks—that is, one of those recently aired in public, although not by any means new—is the dressing madness. The following is an authentic list of the items of the wardrobe required by the Italian literary-artist, Gabriele D'Annunzio, when starting on a recent journey:

Shirts, seventy-two; drawers (with various laces and others embellishments), forty-eight; socks of all kinds, twelve dozen; socks of quiet tinted silk, two dozen; hats, evening-suits, smoking-coats, shooting-jackets, innumerable; gloves for walking, forty-eight pairs; gloves for evening, twenty-four pairs; mufflers of beautiful silk, three; walking-sticks, twelve; umbrellas of violet hue, eight; parasols, green, ten; handkerchiefs, twenty dozen; cravats, resplendent and varied, one hundred and fifty; waistcoats, ten; shoes for walking, fourteen pairs; slippers, "soft, silent, and tremulous," two pairs. Also, a very fine carbine, three revolvers, a dagger, a Venetian box of perfumes, and a lap-dog.

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A CRYING NEED IN CHICAGO.

The following is from the *Bulletin of the Health Department* of the city of Chicago, and reveals a sad state of municipal negligence:

While the Thanksgiving dinner of turkey and trimmings was being prepared for the seventy fortunate inmates of the Chicago "Home for Friendless Dogs and Cats" last Thursday, an unfortunate father—Charles F. Maloney, of No. 559 South State street—was trudging through the streets of the South Division carrying his diphtheria-stricken 2-year-old daughter in his arms in search of some asylum, home or place where she could be taken in and cared for. Refused admission at hospital and dispensary, one after another, he finally reached a police station, whence he was directed to the Health Department, but the child died before he arrived at the Commissioner's office. The body was taken charge of by those in attendance, wrapped in a disinfectant sheet, the ambulance summoned from the Isolation Hospital, and permission obtained by telephone from the Coroner to remove the corpse to the desolate home of the grief-stricken parents on the sixth floor of a densely tenanted flat building swarming with other children.

The two occurrences are not cited together with any intent of disparaging the work of the "Home for Friendless Dogs and Cats," by which 720 dogs alone—cats not counted—have been cared for in the last four months, and for which "a benefit performance is soon to be given in the interest of larger quarters for the Home and necessary improvements for the winter." It is a laudable and humanizing impulse which prompts those interested in this work.

He prayeth well who loveth well
Both man and bird and beast.

But is there not in all this great city enough of those who will emulate the founders of the "Home for Friendless Dogs and Cats" by providing hospital accommodations and a home for friendless infants and children stricken with contagious disease?

No such provision exists to-day for any diphtheria case save in the overcrowded wards of the County Hospital—ten to twelve miles from the city limits in one direction and sixteen to eighteen miles in the other.

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LIPPINCOTT'S for December is running over with good things. Here are a few excerpts:

WHY SHE WANTED AN AUTOMOBILE.

"I might's well tell you, Abner," she said with a grim smile. "I hain't told a livin' soul. But you're a Suncook, same as me, an' I feel as if I'd got to tell somebody."

"What is it?" asked Abner. He moved forward in his chair.

She looked at him shrewdly. "You won't tell nobody!" she said.

He shook his head.

"Well, the first thing I'm goin' to have when I get down off the hill is an—autymobile."

She leaned back, triumphant.

Abner's eyes bulged feebly. He shifted them uneasily to the clock and then to the floor.

Aunt Nancy laughed happily. "Now you think I'm out of my head, don't you, Abner?"

He looked at her with sheepish guilt.

"But I ain't. I never was quite so sane in all my life. I've al'ays wanted, ever since I was born, to ride somethin' that went by itself. I've pulled horses up and down these hills till I'm sick to death of it. I've al'ays set far forred on the seat an' breathed light so's not to weigh so much, an' I want to ride in somethin' I can lean back in an' weigh heavy 'fore I die—somethin' that I won't have to think all the time how tired it's gettin'."—Jennette Lee.

XMAS.

Why Christmas is spelt X-mas
Is plain as plain can be—
It takes a mass of X's
To fill the X-mas tree.

WHAT JANE SUFFERED.

A dear little boy, whose identity it is unnecessary to disclose, attended school last winter, and on an occasion when visitors were announced took part in the exercises given in their honor. The programme consisted of recitations by the brighter children of the school, and among them this particular little boy was called on. He recited, in perfectly good faith, the following lines, which he had learned, or had caught from an indulgent nurse with a semi-poetical instinct:

"Jane ate cake, and Jane ate jelly,
Jane went to bed with a pain in her——
Now, don't get excited, don't be misled,
For what Jane suffered was a pain in her head."

When the youngster told this to his entirely surprised and somewhat shocked parents, they asked him, "What did the teacher say?"

He replied: "She said nothing. She just turned around and looked out of the window, but the scholars and the visitors wanted me to say it again."

THANKSGIVING.

Inside, the grand church organ pealed
And sweet-voiced choir-boys sang;
Broadcloth and Satin lolled at ease,
While belfry music rang.

Outside, the wind blew bitter cold,
A lonely street-waif stood
Hard by the door, with wondering eyes,
In need of clothes and food.

The preacher in his robes of white
Gave thanks in long-drawn prayer;
Broadcloth and Satin bowed their heads—
Gave thanks, each, for his share.

The little stranger out-of-doors
In garments soiled and rent,
Passed on into the great, wide world,
And wondered what it meant.
—J. Hammond Brown.

THE SINGLE THOUGHT AND TWO SOULS.

"Smoking on the car!" exclaimed the disgusted woman, as Dennis Flaherty, with his short-stemmed pipe, took the seat beside her.

"Oi am!" rejoined Dennis, between long and determined puffs. "And av ye don't loike ut, go wan up froont. These sates is resairved fer smokhers."

"If you were my husband, I'd give you poison."

"Would ye, now?" Puff-puff. "Oi think, av ye wor me woife,"—puff, puff,—"Oi'd take ut."—Edward Nocton.

⁂

VICARIOUS RESTITUTION.

Not long since a respectable colored preacher, who was noted for his ability to "cuss out" people from the pulpit, was hurling thunderbolts of invective against his congregation because of a great wave of lying and stealing that was sweeping over the city. Among other things he said:

"No longer'n las' night, some one come an' stole de las' two chickins dat me and mah ol' 'oman had. I b'lieves de thief is in dis house right now, an' I hereby countersigns him to evahlastin' punishment. De nigger dat stole dem chickins is a-gwineter burn fur it sho, you hyeah me! De 'cree has gone forth!"

Next morning a colored man with two fine hens came up to the preacher's door. He said,—

"Parson, hyeah's yo' chickins."

"No, sah," said the preacher, eying the chickens closely, "dese ain't mah chickins."

"I knows dey ain't perzactly yo'wn," explained the parishioner, "but dese is to tek de place of yo'wn. Yo' chickins wuz et up 'fo' de 'cree went forth. An' las' night atter I went to bed, my conshunce hurt me so tell I had to git up and go ovah to Marse Bob's house an' git two mo' chickins. Parson, do tek dese chickins, an' fur de Lawd's sake tek dat 'cree back too."—Silas Xavier Floyd.

⁂

THIRTY MILLION DOLLAR GIFT.

Mrs. Jane L. Stanford has transferred to the Leland Stanford, Jr., University, deeds and bonds, stock and realty valued at thirty million dollars. This is the largest single gift ever bestowed on any one institution of learning by anybody, so far as we are aware. This munificent gift places Stanford University in the first rank financially among the great universities of the world. Leland Stanford, Jr. University, will undoubtedly, in the near future, be one of the greatest educational institutions in the United States, and will rank with Harvard, Johns Hopkins, Pennsylvania, Chicago and Cornell Universities. The University has some 1,500 students, of whom about 500 are women. Many of the students come from other cities and foreign countries. Tuition is free to all students who can pass the entrance examination. It costs more than $1,000 a day to run the great University, and President David Starr Jordan, one of the ablest Presidents in the United States, receives $10,000 a year.—*Pac. Med. Journal.*

⁂

BIBLICAL VISIONS AND EPILEPSY.

In "Theories, Apparitions and Visions, relating to Biblical History and the Koran," Sir Thomas Lauder Brunton, the great medical authority, declares that in his opinion the seers of Biblical history were afflicted with nervous diseases, notably epilepsy. He states that sodium salicylate used for rheumatism often produces the same effect. He declares that certain forms of headache produce peculiar zigzag apparitions, which, in conjunction with excessive imaginations, were doubtless accountable for the fairies seen. This zigzag appearance is to be found in Doré's drawings and in the spirits of Dante. In Sir Thomas' opinion, "if Mohammed had been dosed with bromide of potassium when he had his visions, there would have been no Koran and no Mohammedanism."

⁂

THE ALCOHOL HABIT.

That industrious and esteemed writer, Dr. T. D. Crothers, of Hartford, Conn., who may truly be said to be inebriated with inebriety, has made the various aspects of his chosen specialty familiar to all readers of medical periodicals. We have learned that inebriety is a disease, and that he is a bad, bold man who will uphold the contrary: we have been told that inebriety has a hundred thousand victims in this country, that it is daily increasing, that its pathology, though mysterious, is distinct; that its various phenomena are woven into the social fabric, and affects all classes, all interests, and all phases of life; in fact, that inebriety is a pathological entity of the profoundest significance, scientifically, medically, and socially.

It may well be thought that this is taking a rather large view of the matter; and yet it is quite possible that the medical profession may in time be brought over to it, all of which we fully believe, indeed we believe that a constantly increasing number of physicians are coming to adopt that view. A particularly strong reason for this is the constant increase in medical literature of scientific, in distinction from sentimental, contributions to inebriety. The subject of temperance and intemperance has in the past been looked at almost entirely from the sentimental side, and those who are most enthusiastically interested in lessening drunkeness and inebriety have studied the moral side only or chiefly. There can be no doubt that this is a serious mistake, and that much help could be gotten if only sociologists and medical men would unite to study the problems of intemperance and inebriety philosophically. The question whether inebriety is a disease or a vice, need cause no trouble practically, since it is only a matter of words. A vicious habit (like any habit), by repetition establishes in time a definite change in nutrition, and, perhaps, structure. We may call this change disease, or a vicious habit with an unknown somatic basis, as we choose. It is a definite thing at all events, and one to be treated by other than mental therapeutics alone. This is, we believe, the gospel which our modern apostles of the inebriate pathology are proclaiming.

⁂

The budget of new stories, good to tell after dinner, which *Lippincott's Magazine* appropriately calls "Walnuts and Wine," is never allowed to flag in interest or quality. Month by month they grow better, and in the current number there is uncommon abundance.

BITS OF WISDOM.

THE herd of people dread sound understanding more than anything; they ought to dread stupidity, if they had any notion what was really dreadful.

The world is so waste and empty, when we figure only towns and hills and rivers in it; but to know of some one here and there whom we accord with, who is living on with us even in silence, this makes our earthly ball a peopled garden.

The man, to whom the universe does not reveal directly what relation it has to him; whose heart does not tell him what he owes to himself and others,—that man will scarcely learn it out of books; which generally do little more than give our errors names.

Travel, travel, back into life! Take along with you this holy Earnestness—for earnestness alone makes life eternity.

Nothing is endless but Inanity. Clever people soon explain themselves to one another, and then they have done.

Every man should feel some pleasure in himself, and happy he who feels it.

But what are we to make of that strange, prim, abnegating rigor against a thing which can not be avoided?—Goethe's *Wilhelm Meister.*

* *

THE *Mass. Med. Journal* is guilty of this: "The following testimony was recently given by a woman at the anniversary services of the faith-cure believers, which was held at Mount Zion Sanctuary in Chapel Avenue, Greenville, N. J.: 'This man, when young, spilled some acid in his eyes and destroyed the sight of both. The physician removed his eyeballs and he was totally blind for many years. He was finally persuaded to pray for the restoration of his sight. Shortly afterward he felt something growing in the places where his eyeballs had been. New eyes were given to him, and today he can see as clearly as any person here.' We are now waiting for a raising from the dead."

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

A SYMPOSIUM OF PROPHYLAXIS.

By Samuel S. Wallian, A.M., M.D.

Second Paper.

THE MORE RECENT IMPETUS.

Forty years ago Pasteur discovered the microbe of ordinary beer fermentation. That was the modest corner stake of the little garden patch that has since widened into a broad plantation, whose boundaries have been surveyed and whose forest preserves and unexplored fastnesses are now being systematically invaded.

Based on that original revelation, the father of bacteriology investigated the vineyard blight and found that, too, dependent upon a destructive and rapidly multiplying microorganism, to combat which he discovered an antagonistic parasite. Then he pushed his inquiries among the silk producers, and taught them how to fight off the destroyers of the wealth-producing silkworm. Patiently and persistently he continued his labors, until, one after another, he had robbed sheep cholera, hog cholera, and the destructive diseases of poultry of all their terrors, and restored the associated industries to their former lucrative condition. As a result his individual labors are credited with having saved to France a sum of money greater than the total cost of the Franco-Prussian war, even including the enormous indemnity extorted by the inexorable Prince of the Iron Glove.

Other discoveries and demonstrations made by him were fundamental to all that have followed. He proved that the blood of the carnivora differs from the blood of the herbivora, differs not only physically but chemically; that the blood serum of the horse dissolves the corpuscles of the blood of man and of many other animals; and that the blood of the hen dissolves the blood of other feathered species. This explains why transfusion fails when attempted between unlike species, and succeeds only when practised between closely related species, as between man and monkey.

Serum therapy is our latest and yet imperfect effort in the same direction. Its aim and scope are primarily for prevention, only incidentally for cure. It would ultimately render the race immune to all the deadly infections.

It is in this field that medicine must achieve most of her future victories. Advances in other lines, even in surgery, in which claims of scientific certainty have been loudest—have been subject to handicaps, revision and abandonment. Besides, even at best, surgery is itself a system of conservation rather than of cure, and legitimately takes its place as a means of preventing further injury, suffering and disease.

WAYS AND MEANS.

The revelations of the microscope and the culture laboratories made possible a new science—bacteriology. The theory of spontaneous generation had occupied and satisfied the minds of scientists for so long that it seemed to be firmly established and final. The lensmaker's art made it possible to so effectually probe its foundation argument that it was soon left without prestige or plausibility.

True, there had been vague hints and speculations as to some "very minute living worms," and of infinitesimal "animalculæ," as far back as the latter part of the seventeenth century, when the Jesuit priest and the Dutch linen merchant discovered creeping things in rainwater, saliva and putrefying fluids. True, also, that a Viennese scientist, in 1762, expressed the belief that the minute, moving animals discovered in putrefying meat, etc., were the causes of disease; but he was deemed a visionary, and made no practical application of his theory.

But the study of biology was destined to rapidly concentrate itself on a single department—that of bacteriology. The importance of the revelations that have followed we have not yet fully realized, and the scope of those yet to come is beyond the capabilities of the most vivid imagination.

Already the causes of the deadliest maladies, including pneumonia, diphtheria, typhoid, tetanus, relapsing fever, influenza, cholera, bubonic plague, yellow fever and tuberculosis, have been successively announced, and their discovery has placed those diseases on a new pathologic and therapeutic basis.

Every one of these discoveries has added a fresh weapon to the armamentarium of Preventive Medicine; for it must be admitted that all have accomplished far more toward teaching the world how to prevent than how to cure disease.

The conspicuous object lession taught by all of them is one of Prophylaxis rather than of Treatment.

According to our present light, only a certain comparatively few microbes are pathogenic. All the others are either innocuous, or they assist in the normal perfection of vital processes, and thus directly aid in the preservation of health. When they may be classified as aids instead of antagonists they accomplish their missions in one of several ways:

1. By acting the important part of enzyms or ferments, and thus effecting a more perfect digestion of foods.

2. By the destruction of conditions which are essential to the life, vigor and reproductive capacity of the virulent species.

3. By their direct antagonism toward, or actual destruction of, the pathogenic forms.

The most pressing and important lesson yet presented, the lesson now before us, is, how to pit the helpful against the hurtful microorganisms, and thus to so thoroughly forefend the race from all the infectious and fatal diseases that death will at last be restricted to one of two causes—old age or accident.

CORROBORATORY.

Cholera was once more dreaded than typhoid fever. Thanks to the developments of science in the field of bacteriology, it is now quite amenable to sanitary control. Its germ is known, and its source of contamination or infection is found to be almost without an exception, through infected water or food. While it is not unusual for it to be brought to this country once or twice every season, it is promptly stamped out at the very threshold, and is no longer a source of panic and dread. The latest object lesson, on a large scale, was that of Hamburg, ten years ago. The water-supply of the city came from the contaminated Elbe, and was used without having been filtered or otherwise sterilized. The number of cases reached 18,000, with a mortality of more than 44 per cent. At Altona, near by, and similarly exposed, except that filtered water was used, there were but few cases, and these mostly refugees from Hamburg.

The bubonic plague or black death is another instance of a scourge whose germ is known, and one which is now in a fair way to be stamped out of all civilized communities, by the rigid employment of means that have been clearly pointed out and tested.

At the opening of the century variola was so prevalent that few individuals reached adult life without incurring an attack, and of those attacked, from 25 to 30 per cent. died of the disease. To-day, by means of protective vaccination, it is no longer a scourge, but occurs sporadically and claims comparatively few victims.

At that time, in case of an outbreak, of one thousand unprotected individuals, ninety per cent. were usually attacked, and of this number from twenty-five to thirty per cent. died. Of one thousand individuals properly protected by vaccination, only two per cent. will be attacked, and of these very few will die. In England, where the records have been very accurately kept, half a century ago, the mortality from typhus and typhoid fevers was 1,228 per million living. At present the mortality from these diseases has been reduced to less than 140 per million living, and of this small number but three occur from typhus, since that is more strictly a disease of filth and overcrowding.

The progress in arresting typhoid has not been so rapid or brilliant, for the reason that it does not depend so much on personal filthiness and overcrowding as upon infected water-supply and the contamination of articles of diet. Whenever the water-supply and drainage of any large city are made to approach the condition now so clearly pointed out by sanitary science, its mortality from typhoid falls so rapidly that the sanitarian is warranted in predicting that it will not now be very long ere this fatal and intractable form of disease will be practically unknown. Vienna introduced better water throughout her borders, with the result of reducing the mortality from typhoid to one-twelfth of its former rate. Munich showed even more remarkable results. Purifying the water-supply and improving the drainage resulted in a steady lowering of the death-rate from typhoid, until, from 29 per 10,000 living, in 1857, it fell to 1 per 10,000 living, in 1887. In this country the city of Albany realized results similar to those accomplished in Vienna and Munich. The endemics which still occur in the rural districts are invariably traceable to carelessness, or at least to definite and avoidable causes.

The three sources of infection in the country are, house epidemics due to infected wells, springs or other sources of domestic water-supply, careless disposition of the dejecta of typhoid patients, and infection acquired through the medium of infected milk and other dairy products. The infection of milk is readily accounted for from the contamination of running streams, grass and herbage, by unthinking or uninformed attendants in charge of patients suffering from typhoid. This means of disseminating the disease would be effectually abolished by a general and thorough inculcation of sanitary knowledge on the part of the general public and the common people. Legislation has been sought, but can never be relied on as a final remedy, or to take the place of the sanitary education of the people.

The prophylaxis of tuberculosis is now admitted to be of greater importance than that of any other prevailing disease. Its victims annually exceed those from all the acute infective diseases, possibly excepting pneumonia. A quarter of a century ago we were practically ignorant of its causes, but considered heredity the principal one. The discovery and study of its germ has revolutionized our ideas as well as our practice. We now know that, at least in an overwhelmingly large majority of cases, the disease results from direct infection, and that if hereditary at all it is so in a very limited sense.

The chief but not the only source of infection is the sputum. The germs of the disease multiply with incredible rapidity, and are as persistent and tenacious of life as they are prolific and virulent.

The question of infection from bovine sources, that is, through milk, meat and dairy products, is to a certain extent still *sub judice*. Evidence is not wanting to prove such infection possible, yet certain noted authorities have committed themselves to the theory that bovine and human tuberculosis are distinct, and that the bacillus of one can not be made to produce the disease in the other species.

From the fact, already alluded to, that

logic itself seems at times unsettled on its basis, it is not quite safe to assume that anything approaching finalities in philosophy or physic has yet been formulated, and it is becoming to await further investigation in this field.

As we learn more of the nature, habits and susceptibilities of microorganisms the warfare against the pathogenic varieties will become more and more intelligent and effective.

The hope and promise of the future lie in the steady acquirement of the highest possible degree of immunity, through better modes of living, more perfect sanitary surroundings, and more intelligent avoidance of sources of infection. This can be realized only by concerted action all over the world, by the progressive enlightenment of the whole people, and by the universal establishment of a moral as well as legal quarantine against those who are unfortunately infect and wilfully careless.

MEANS OF AUGMENTING IMMUNITY.

No individual can hope to escape more or less frequent contact with hurtful germs. Under present conditions they are practically omnipresent. They permeate the earth beneath our feet, they swarm in the air we breathe, and they multiply in the waters we imbibe. They abound in all food products, whether animal or vegetable, fruit, fish, flesh or grain. The system escapes only through the power of resistance and defense, and this power is made up of inherent or acquired immunity.

The basis of health is, therefore,

1. Hereditary vitality.
2. Acquired resistance.
3. Artificial correction and counteraction.

Very few mortals are at all times immune to the invasion of hurtful germs, or to the presence and contact of toxic alkaloids, corrosive chemicals or organic poisons; but each individual organism is originally and normally more or less perfectly fortified, within itself, against morbific invasion. Its own vital integrity and physiologic status is a measure of its degree of vulnerability or immunity. Hence, hereditary endowment is the first line of defense.

Racial characteristics and proclivities have much to do with the development or avoidance of tendencies and susceptibilities, as regards certain forms of disease, or special diatheses, and diatheses are neither more nor less than tendencies toward some particular form of vital degeneration. Our subject would be incomplete if it did not take into account all the various sources of endowment, every influence that can affect congenital capacity, which is the vital endowment of each individual. We can have no voice in the choosing of our ancestors, nor in the selection of the skies under which we were fortunate or unfortunate enough to have been born! But we can conserve and cultivate the original inheritance, and we must not neglect the careful study of every measure that is calculated to forefend and forearm future generations.

This phase of the subject has already received mention, and as it would be in a sense legislating *ex post facto,* no further mention of it need here be made.

Under the second head the field is a wide one, and there is so much to be said that one is puzzled to decide where to begin, what to select and what to reject.

Environment, after heredity, is basic, because it determines, or at least profoundly influences so many other conditions. It includes climate, social and political surroundings, occupation, education, racial customs, personal habits, etc., etc.

The foremost factor in connection with environment is Climate. "No man can farm against climate" has passed into a proverb. The French put it: *"Changer du climat, c'est naitre a une nouvelle vie."*

In a purely physical sense climate is environment, and environment shapes every condition, stimulates or retards all growth, promotes or obstructs every effort.

One of the latest definitions of the word *Climate* makes it, "The combination of the various conditions of the atmosphere and the earth's surface, determining the suitability of a region or site for the health of animals and plants."*

Within certain limits and extremes of climate the human animal survives but does not by any means uniformly flourish in the different gradations; after heredity climate is therefore a dominant factor in its relations to health and longevity. It practically determines all the immediate surroundings of the individual—the air he shall breathe, the kinds and qualities of the food he shall eat, the temperature and weather he shall endure, resist or enjoy, the occupations he shall pursue, and the society in which he shall move.

To illustrate the controlling influence of climate on the growth, character and general career of the individual, and on any given species, it is only necessary to cite the experiments of Standfuss, the Swiss naturalist, who produced Arctic butterflies from ordinary cocoons, by subjecting them to cold storage, and tropical ones from the same cocoons, by exposing them to a higher temperature. Thus, the pupæ of *Vanessa urtica,* common in Switzerland, by being kept at 39° to 43° F. developed *Vanessa polaris,* and under a temperature of 98° to 103° F. produced *Vanessa ichnusa.* In other words, temperature alone changed the nature of the resultant butterflies, *in the chrysales!*

It is evident that we have not yet studied with sufficient thoroughness the prophylactic possibilities of climate, of heat and cold, of shadow and sunshine, of atmospheric currents and barometry.

Theoretically and in a sweeping sense latitude determines climate. Practically, and in fact, it is an unimportant or at least only approximate factor. This is aptly indicated by the trend of isothermal lines, which digress materially and very irregularly from the parallels. For example, the isothermal that passes through New Haven, lat. 41°, North, in crossing the continent, swerves as far south as Santa Fe, in N. M., lat. 35.30°, afterwards bending sharply to the North and reaching the Pacific at lat. 47°. The causes of these fluctuations, partly topographic, but chiefly cosmic, need not here be discussed. The immediate dispenser and regulator of climate is the sun. It is the direct source of every form of organic life and of all vital manifestations. It is the sole source of light and heat, without which nothing that lives can reach perfection, and life itself becomes impossible. It generates electricity, the nearest approach to vital force of which we have any knowledge. It generates ozone, the most permeating and powerful of all the antiseptics. It creates climatic conditions, by rendering the atmosphere respirable. It transforms inert, unorganized matter into living and functionating tissues, into breathing, thinking and reasoning organisms. It is the source of all power, whether of muscle, steam or electricity. Its emanations are stored in the coal deposits, in the abundant reservoirs of petroleum, and in the great earth caverns of compressed gas. It drives all our commerce, over sea and land, across deeps and deserts, and puts every hamlet in touch with all the rest of the world. It presides over combustion, banishes darkness, and antagonizes the benumbing and deadly influence of cold. It originates and controls the law of gravitation, inhibits inimical tendencies on the part of matter, restrains all antagonistic forces, and influences and holds the universe together. But for its always benign and conservative potency cosmic order would be annihilated, and the planetary system would wander darkling to everlasting destruction, a chaos of ungoverned matter in unknown and illimitable space. Moon and stars, dislocated from their orbits, would no longer shine; the tides would cease to move. winds would sink to an eternal calm, and oceans would turn to stagnant pools of pollution, full of dead and decomposing species. Without the sun the atmosphere would become an aerial ocean of deadly miasm, in which neither plant nor animal, bird nor being of any kind could for a moment survive.

Back of environment is climate; back of climate is the solar spectrum, and back of this Creative Energy, beyond which our philosophy can not penetrate.

To leave out of the consideration the sun,

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*Weber, *Physiologic Therapeutics,* III Climatology.

the soul-center of all things visible, is to ignore fundamentals and potter with insignificant details.

CLIMATIC BEARINGS IN DETAIL.

Climate is very generally appealed to as a curative in certain chronic diseases. But it is a negative cure, merely ensuring, when judiciously selected, a more favorable environment. It therefore falls into the category of preventives. Because of climatic differences one locality may be strictly salubrious, while another similarly situated may be noxious and unwholesome. Climate furnishes the background for the entire hygienic picture. It may be good, indifferent, or positively bad.

The so-called "fresh-air" cure is a climate cure. Thorough aeration has for ages ranked high as a destroyer of "miasms." It still maintains its reputation, but we now write the name of its object, *microbes.*

The three powerful germicides of nature are sunlight, ozone and oxygen, the two latter being different conditions of the same element. A majority of the pathogenic germs can not live in the presence of either of these agents. On the contrary, there are a few species that perish unless constantly supplied with air. Sunlight destroys nearly or quite every variety of hurtful microorganisms, or if it fails to destroy them it robs them of their virulence and leaves them powerless for further harm. It is for this reason that those climates which afford the greatest number of hours of unimpeded sunshine during the year, rank highest in the prevention of infection and contagion, and are most sought as health resorts. It is now well-known that some of the most fatal and intractable chronic diseases are caused by "house-air"—the results of too much coddling and indoor living. Climatic characteristics that invite and induce human beings, especially the more susceptible ones, to spend a larger portion of their time in the open air become valuable auxiliaries in the preservation of health and the recuperation from disease. Colorado, California, the Davos-Platz, the Riviera, and other "sunny climes" would have gained little repute as health-resorts, but for the fact that they all enjoy an unusual number of clear, bright days throughout every year.

One of the necessary conditions of microbic life is moisture. In fact, no known species of pathogenic germ can develop or multiply except in the presence of moisture. Most sunny climates are comparatively arid, and in these, aridity becomes a powerful ally in counteracting and preventing every form of septic degeneration, which is but another name for microbic infection.

While art can not make actual climates, much can be done to modify and ameliorate the natural climates that are found in different parts of the world. This modification can be accomplished in a general and limited way by lessening the degree of soil moisture by drainage, by denuding the region of forests, or by replacing those that have been removed. In this way the atmospheric humidity can be more or less influenced, and through this the sensible temperature, which is not always the same as the theoretical or mathematical one. Denuding large areas of their forests lessens the annual precipitation, and by reducing the natural supply of surface water changes the average atmospheric humidity, and this reacts on other climatic characteristics, including thermometry, but more especially increases the liability to sudden changes of temperature, and the force, frequency and variability of prevailing winds.

Not much has yet been done in this direction, but there are regions in America which are now almost rainless, and therefore absolutely barren and uninhabitable deserts, that can be greatly modified as to climatic conditions by the inundation of low areas adjoining them.

A NOTABLE EXAMPLE.

A marked instance of this kind is to be found in Southern California and Southern Arizona, in portions of which the annual rainfall is next to nothing. The dry bed of Salton "Lake," a Dead Sea, whose waters long since turned to dirty salt, and that of Death Valley, are nearly three hundred feet below the level of the sea. By cutting a canal from the Gulf of California, and turning these two geologic sinks into an inland ocean or bay, or by diverting the Colorado river, with its immense volume of fresh water—either of which feats is quite among engineering possibilities—climatic changes, the extent of which can hardly be estimated, and affecting wide areas of country, would certainly follow. Southern California and Southern Arizona would undergo marvelous meteorological and climatic transformation.

In view of the greatly enhanced importance of that region, and its changed commercial and political relations, through our recent acquisitions in the Pacific and the far East, it will be strange if American foresight, enterprise and irrepressibility do not soon improve the opportunity. In comparison all the gigantic and ambitious irrigation schemes yet projected or proposed, by private enterprise, or urged upon the Government, sink into second place, if not into insignificance. From the standpoint of the sanitarian and philanthropist the Isthmian Canal, immense as its commercial and political possibilities may be, is not to be compared with this suggested and entirely feasible project. It would convert an extensive area of burning desert, now so nearly uninhabitable that it has acquired the name of "*Valle del Muerto,*" or Death Valley, into a deep water lake or ocean. In comparison with the results the expense would be inconsiderable, since it would transform the area of a goodly-sized state into a Garden of Eden, and make it the Sanitarium of the world! The region, or rather the fringelike borders of it, already have earned a world-wide repute in the healing of the desperately sick. Consumptives who are not too far gone go there and astonish their medical advisers by recovering. The gouty, the asthmatic and the dyspeptic, and sufferers from Bright's and diabetes find there a climatic hospitality and hygienic accessories, by the aid of which they either fully recover, or are enabled to live many years in comfort. In the language of a recent writer:

"This atmosphere, the soil, and the sea-breeze, which is a miniature trade-wind in regularity, are so full of antisepsis and ozone that all the coughing, expectorating consumptives in the country might come hither, with ever so well-developed colonies of bacilli, without danger of inaugurating a single new colony, or jeopardizing the most susceptible of their friends or neighbors."

The possibilities of rehabilitating the climatic characteristics of any given locality have as yet scarcely been mentioned, much less practically considered. It is nevertheless a problem worthy of the profoundest consideration of the humanitarian as well as of the sanitarian, and the political economist.

In all northerly latitudes we are compelled to resort to artificial heat to modify the home climate and make it endurable; but as usually accomplished, it involves a considerable surrender of other climatic features and sanitary aids—as, sunlight, thorough aeration, outdoor living, healthful exercise, and the like. Temperature is quite amenable to the interposition of art, pure air ought to be, but is not everywhere, available, humidity, precipitation and wind currents can be more or less modified and controlled; but there is no feasible substitute for all-powerful sunlight.

The artificially manufactured climates of civilized man, by means of stoves, furnaces, steam radiators and electricity, are therefore sanitary makeshifts. Necessary as they are, they induce various debilitating and unhygienic habits, so that even in the most favorable and salubrious climates, both invalids and the well immure themselves in close rooms, accustom themselves to enervating temperatures and too much clothing, and thus lower the general vital tone, until they become an easy prey to infection, and prolific culture media for any and every species of predatory microorganism with which they come in contact.

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DISINFECTION OF THE HANDS.

Essential oils have already been utilized for dressing wounds, but their employment for rendering the hands aseptic is rather novel. Nevertheless, such an innovation seems to rest on a rational basis, as shown by the experimental researches of Dr. E. Calvello.* Certain oils possess, according to this author, germicidal virtues equal to those of a 1-per-cent. sublimate solution.

He experimented with the oils of thyme, geranium, patchouli, and cinnamon. Emulsions of different strength were prepared, and the hands previously soiled with staphylococci or bacterium coli were washed with soap and water for five minutes, then immersed for the same length of time in absolute alcohol, and finally washed five minutes in the emulsion. Cultures were thereupon made.

By this means the author could establish the following propositions: Neither alcohol after soap and water, nor the methods of Ahlfeld and Fürbringer can render the hands perfectly aseptic.

On the other hand, an emulsion of oil of cinnamon, 7 to 8 per cent.; of thyme, 11 per cent., or of geranium, 17 per cent., possesses the germicidal power of sublimate 1 per cent, without the disadvantages of the latter. To insure absolutely complete asepsis we only have to use oil of cinnamon, 9 per cent.; thyme, 12 per cent., and geranium, 18 per cent.

The oil of patchouli is inferior to the others, even in concentrations as strong as 50 per cent.

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We, ignorant of ourselves,
Beg often our own harms, which the wise powers
Deny us for our good: so find we profit
By losing of our prayers.
—*Shakespeare.*

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* *La Sem. Med.*, xxii, No. 33.

INVESTIGATIONS OF THE ACTION OF SUBLAMINE (ETHYLENEDIAMINE-SULPHATE OF MERCURY) AS A DISINFECTANT.

Dr. M. Blumberg describes in detail the experiments reported at last year's Surgical Congress in Berlin, and announces the results obtained from practical applications of Sublamine.

He calls attention to the importance of selecting the mercurial salt having the greatest power of tissue penetration, which, as his experiments have demonstrated, is Sublamine. Furthermore, corrosive sublimate frequently causes eczemas of the skin; and exact experimentation has shown that the very slightest roughness, the most insignificant scaling of the skin, make an efficient redisinfection more and more difficult. As Schleich, Gottstein, Haegler and others have insisted, a good condition of the hands is the first desideratum for efficient sterilization ; and Sublamine, even in very concentrated solutions, in which sublimate cannot be employed at all, does not attack the skin.

Sublamine has been used by Prof. Kroenig in his extensive operative work, in all his laparotomies and other operations, for the disinfection of the hands and skin, and the constant employment of Sublamine left the operator's hands in irreproachable condition. Prof. Kroenig authorized him to publish the following statement: "Prof Kroenig uses Sublimine in his clinic for the disinfection of the operator's hands and the patient's skin in strengths of from 1 : 1000 to 1 : 500. Whenever the hands have been in contact with suspicious material, the concentration is increased from 1 : 300 to 1 : 200; and no irritation of the hands has ever occurred. Besides this, the silk employed for sutures is boiled in a watery 1 : 300 Sublamine solution, as in the Kocher method."

Abstracted from the *Muenchener Medicinische Wochenschrift*, September 16, 1902.

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AN "INCURABLE" CASE CURED.

The busy practitioner is interested in *results*. Here is the history of a severe case of Diabetes Mellitus treated with Arsenauro:

Mrs. E. R., aged 68, saw her Jan. 1, 1900. Signs of rapid recent emaciation and great loss of strength, extreme prostration, physical and mental. History of profuse micturition for several months. Marked pruritus vulvæ. Patient believed she had a cancerous womb, having been told her case was incurable. Examination showed no uterine disease, merely slight leucorrhoea. Diabetes Mellitus was very evident even before urinalysis was made. Urinalysis showed high specific gravity and large percentage of sugar. I ordered a saline purgative to thoroughly flush the intestines, and established a strict diabetic diet. I then administered Arsenauro in five (5) drop doses three times daily in a large glass of water, increasing one drop every other day until arsenical symptoms manifested themselves. Improvement was most marked and rapid. At the end of thirty days the amount of urine voided was reduced to nearly normal. Strength of patient rapidly returned. Pruritus vulvæ entirely disappeared. Only slight traces of sugar in urine. The dose of Arsenauro was now increased one drop every day until reaching a dosage of seventy (70) drops t.i.d. Colicky abdominal pains and slight puffiness under the eyelids was now observed. Urinalysis showed total absence of sugar. The dose of Arsenauro was now reduced to twenty (20) drops t.i.d. and continued for three months under a strict diet. Frequent urinalysis showed no sugar. Arsenauro was now discontinued and a more liberal diet allowed. Patient has been seen frequently during the last two years, but there has been no recurrence of the symptoms.

This case is typical of several others which I have treated in the same manner and with exactly the same results. I submit the foregoing in the hope that it may be of value to others who have found as little assistance as I in the text-books treating of this puzzling ailment.

C. A. Palmer, M.D.
Bowdoinham, Maine, Oct. 27, 1902.

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RULES FOR BREATHING.

If one's health is impaired, or if he wants to preserve it and increase his power to resist disease, he must, first of all, give attention to his breathing. Even food and drink are second in importance to this, for one can live for days without nutrition save the air breathed, but if deprived of that, even for a few minutes, life ceases. Here are some of the first rules for acquiring a correct method of breathing, as given by a specialist who has made an exhaustive study of the subject: 1.—After retiring at night, release body and mind from all tension, and take full and regular inhalations through your nostrils; hold the breath about one second; take all the time you can to exhale it; keep this up until you are weary or fall asleep. 2.—When you wake in the morning, repeat the exercise at least for five minutes; longer, if time permits. 3.—During the day, take as many full respirations as possible, exercising care with the exhalations. While taking these exercises, one should bear in mind the thought that he is inhaling new life and power.—*Success.*

⁂

THE CHINESE SACRED LILY.

The Chinese sacred lily is one of the most beautiful of winter blooming bulbs and its intensely fragrant flowers, lasting for many days, more than repay the little time required to care for them. In October procure heavy medium-sized bulbs from the florist and carefully tear away all brown skin attached to them. Some cut narrow slits with a sharp knife through the outer layer of the bulb. Fill a vase, jardiniere, glass or china bowl with clear distilled or rain water and add a few bits of charcoal. Fasten them in place by laying small stones, marble or quartz upon and against them, so that they cannot slip out of position. As the roots grow they will form a network about the stones and so fasten the bulbs that they will not tip with their later weight of blossoms. When this is done set away in a cool, dark place for six weeks—they may be left ten without injury—adding a little water occasionally to replace that lost by evaporation. The charcoal will keep them sweet and prevent the forming of mould at the surface of the water. At the end of the root-forming period bring them from the dark closet to a shady room, and after a few days set them in a cool, sunny window. The rapidity with which they grow is marvelous, and one can almost see the flower stalks grow as they reach up and clothe themselves with blossoms.

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PHTHISIOPHOBIA.

Dr. S. A. Knopf, before the Academy of Medicine, recently discussed the new disease, "too great fear of consumption," which has begun to spread and may have serious results. The Treasury Department of the United States has recently been very seriously infected by it. The Surgeon-General of the Marine Hospital Service recently decided that tuberculosis is a dangerous contagious disease. This decision would act to exclude all tuberculous patients coming to this country, even though very slightly affected, and it would apply to those coming in the first and second cabin as well as to steerage passengers. This decision is founded on an entire misunderstanding of the nature of tuberculosis. It is well known that contact *per se* with tuberculous patients is not dangerous. There is no scientific basis for the classification of tuberculosis among the dangerous diseases. A consumptive cough is not necessarily infective if the sputum is cared for. In New York Dr. Hermann M. Biggs, whose position in the matter is approved by Koch, says that workmen suffering from tuberculosis are not necessarily a source of infection to coworkers if they take proper sanitary precautions. Professors Janeway and Prudden declare that tuberculosis is a communicable, but not a contagious disease. To accept this decision of the Surgeon-General of the Marine Hospital Service is to stamp patients suffering from tuberculosis with the undeserved stigma that they are a constant source of danger to others. This will work serious harm to poor people. Already healthy men are being thrown out of employment not only because they have a persistent cough themselves, but because it has become known that they have a relative suffering from tuberculosis. Dr. Knopf has seen a poor washerwoman lose her position because of a chronic bronchial cough. Others find it difficult to procure positions when the story becomes known that they have relatives who have tuberculosis. This will entail almost untold suffering and hardship if the present impression in the matter is allowed to go uncorrected. The logical conclusion from the decision of the Treasury Department would be that tuberculosis, as a dangerous contagious disease, must be reported and strictly quarantined. This would be the logical outcome of the intemperate outcry against tuberculosis. As a matter of fact, the contiguity of tuberculous patients is not dangerous and even susceptible persons are safer in a well-conducted sanatorium than elsewhere.

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BACTERIOLOGY AND MEDICINE.

Too much must not be expected from bacteriology, which is only an aid to diagnosis, though an invaluable aid. There are still a few practitioners, rapidly diminishing in numbers, who minimize the information to be obtained from exact scientific procedure, regarding it as likely to be misleading or fanciful. They are wrong in their attitude, which is opposed to all progress, but, on the other hand, many enthusiastic workers are inclined to place too high a value on the knowledge to be obtained by the use of bacteriological methods. These ardent bacteriologists are prone to forget that there are essential differences between a man and a test tube; they do not allow sufficiently for the gaps in our knowledge of vital processes. Too great stress can hardly be laid upon the fact that in order to secure the greatest amount of value from bacteriology as an assistant to clinical medicine the clinician and the bacteriologist must work together. By this plan only can the errors in diagnosis be lessened.—*Lancet.*

* *

DIPHTHERIA ANTITOXIN AS A PROPHYLACTIC IN SCARLET FEVER.

BY G. H. SHERMAN, M.D.,
Detroit, Mich.

In April 1, 1895, I gave my first dose of diphtheria antitoxin to a boy, six years of age, who had been taken sick with a severe attack of diphtheria, three days before. The result was so gratifying, and the recovery so complete within a few days, that the consent of the parents was obtained to give an immunizing dose of serum to each of the four other children of the family. These children had been continually exposed during the other child's illness, but not one of them contracted the disease. Ever since that time, I have made it a practice to give an immunizing dose of 500 units of antitoxin to any exposed child in any family where diphtheria has occurred, a procedure to which the parents seldom object. This has been done with the gratifying result that not one of the immunized children contracted the disease, although no attempt at isolating them from the patient was made.

One morning in December, 1896, I was called to see a child with a sore throat. Upon examination I found the tonsils swollen and covered with white patches, the lymphatic glands of the neck were swollen, there was considerable fever and the symptoms generally pointed to something more serious than ordinary sore throat. A diagnosis of diphtheria was made, and antitoxin decided upon as the remedy. There were three other children in the family, aged four, six and ten years, respectively; an immunizing dose of antitoxin was recommended for each. On the afternoon of the same day, I gave each child 500 units of diphtheria antitoxin, before looking after the little patient.

Upon paying attention to the sick child, it was apparent that I had a case of scarlet fever instead of diphtheria, the rash just making its appearance. Not knowing what effect diphtheria antitoxin might have in scarlet fever, it was not given. I kept track of the three immunized children to see if they would take scarlet fever, and found that not one of them contracted the disease although exposed during the entire course of the sick child's illness.

Since then I have given diphtheria antitoxin to three children, aged two, four and six years, respectively, and to one adult, when scarlet fever was prevalent in the families. None of these four cases contracted the disease, although all but one were exposed during the entire course of it. None of these seven cases had had scarlet fever.

This may not prove anything; but if diphtheria antitoxin has no immunizing power against scarlet fever, it is quite singular that not one of these seven persons should have contracted the disease. I shall continue to use Parke, Davis & Company's diphtheria antitoxin as a prophylactic in scarlet fever, and hope others will do likewise, in order that more definite results may be obtained.

* *

Gladys—Why is it that ministers usually marry so young?

Harold—Oh, that's the only game of chance they're allowed to play.—*Ex.*

INFLUENCE OF PHYSICAL EXERCISE UPON THE DEVELOPMENT OF THE GROWING YOUTH.

Dr. R. Godin made some interesting observations upon 100 children of ages varying from 14½ to 18 years. The measurements were taken every six months. One-half of this number (*a*) was obliged to exercise upon apparatus, preferable the parallel bars, while the other half (*b*) was not to indulge in this sort of exercise. The result of the apparatus work was especially marked in chest circumference. The difference between the two groups was from 8 to 10 centimeters at the end of four years which ended the school life. The general differences were as follows:

	Group *b*.	Group *a*.
Girth of chest	3 cm	5 cm
Girth of upper-arm	4 cm	5 cm
Girth of forearm	3 cm	6 cm
Girth of calf	5 cm	6 cm

Simultaneous with this development was the increase of weight. While the weight of those not doing the heavy or apparatus work increased about 14 kg, the weight of the others increased 20 to 25 and even 27 and 29 kg. To a slight degree the growth in height was also influenced by the apparatus work.

* *

SOME USES OF HYDROGEN PEROXIDE.

Dr. Novikoff reports good results from the use of solution of hydrogen peroxide containing ½ per cent. H_2O_2 in infectious' wounds and ulcers; a few dressings sometimes suffice to bring about cicatrization of simple atonic wounds; and he has had success with the peroxide in lichen and other skin diseases. He uses either the 3-per-cent. (10-vol.) solution, or an ointment composed of 10 to 15 parts of the latter and 100 parts of anhydrous wool-fat. In stomatitis of any origin, but particularly in mercurial stomatitis, the lesions disappear more rapidly under hydrogen peroxide than under any other treatment ever tried by the author. A gargle is prescribed consisting of one or two tablespoonfuls of solution of hydrogen peroxide to a glass of water. Internally, the remedy has manifested an equally favorable action in diarrhea, cholera infantum, and certain respiratory diseases; here it is given in the following mixture:

Solut. Hydrog. Perox	5 to 7 Gm. (1¼ to 1¾ dr.)
Syrup	15 Gm. (½ oz.)
Distilled Water	85 Gm. (2¾ oz.)

One or two tablespoonfuls or dessertspoonfuls hourly or every two hours.

* *

ROSE CURE FOR NERVOUSNESS.

Roses as a cure for many of the little aches and pains of life, says the Chicago *American*, are advocated by those who believe our mental condition has much to do with our physical pains. It has been discovered that a rose will cure the headache. Its perfume soothes the nerves and the brain is rested by its color. Recline on a pillow of roses if you can. If you can not do this, lie and look at a few of the flowers. Tie up your head with a rose perfume if you have it, and, like the famous London beauty, pull the flowers to pieces, sniff deeply the rose, let your eyes look long at the peculiar tint in its depths, and cure yourself. If you will give half an hour to this cure, you will find yourself much refreshed in every way.

* *

Bill Nye once said that John Bright, having discovered the need of "a good, reliable disease for the use of the aristocratic and American statesmen," began to "sit up nights and perfect Bright's disease." He says of it: "It has been kept out of reach of the poor, and to die of this disease has been regarded as a proud distinction."—*Iowa Medical Journal.*

CONCERNING ADRENALIN.

In ophthalmological work adrenalin chloride has proved a valuable remedy in E. Lopez's (*Rev. Méd. Cubana,* Nov. 1, 1902) experience. In cases of injected conjunctiva, the doctor states that upon instillation of one drop of adrenalin chloride (1 in 1,000) the eye at once regains its normal appearance. The hemostatic property of the substance has proven most valuable in operative work, including operations for pterygium, small palpebral tumors, iridectomy for glaucoma and enucleation of the eye under chloroform; little or no hemorrhage occurring when adrenalin is used. For patients' own use in congestive affections of the eye, the author prescribes an eye-wash of adrenalin chloride, one in 5,000, or in severe cases, one in 2,000, four times daily. Its application to the mucosa is devoid of pain or discomfort.

* *

DEATHS AT DIFFERENT HOURS.

"In an investigation covering over three thousand cases in relation to the hour of death," said a well-known physician, who has been himself a student of the question, "it has been ascertained that the greater number die between 5 and 6 o'clock in the morning, when the death rate is over 40 per cent. of the average; the next, during the hour before midnight, when the rule is about 25 per cent. in excess. A third hour of excess is from 9 to 10 in the morning, when the rate is about 18 per cent. in excess. On the other hand, the death rate between 10 and 3 p. m. is 16 per cent. below the average, the hour before noon being the most fatal. From 3 o'clock until 7 in the evening the deaths rise to 5 per cent. above the average, and then fall from that hour to 11 p. m. From 9 to 11 o'clock at night there is a minimum of 6 per cent. below the mean average. The least mortality is between 10 a. m and 3 o'clock in the afternoon, and the greatest during early morning hours, from 3 to 6 o'clock."—*Washington Star.*

* *

DIOXOGEN IN THE REMOVAL OF ADHERENT DRESSINGS.

Mikulicz and Poncet, in *Le Scalpel,* No. 48, 1901, speak of the difficulty with which gauze is removed from a superficial wound and the pain caused by separating a gauze drain from the deeper structures. In some cases it adheres so closely that the granulations are torn and there may be considerable hemorrhage, to say nothing of the pain which the removal causes the patient. All these difficulties are overcome by saturating the gauze with dioxogen. It must be thoroughly applied. Under such circumstances bubbles of gas will be seen to form between the tissues and the gauze, which will liberate it, this being facilitated by slight traction upon the dressing, and as it is lifted allowing the dioxogen to flow between the dressing and the wound. This makes dioxogen a valuable auxiliary to the armamentarium of the physician as well as surgeon.

* *

What quarantined people expect to receive from the city health department in Detroit is demonstrated by the following requisition, made on the health officer recently: "Five lofs of bread Pound of coffee two pounds of poder house stake too Pounds pork Chops one Chicken twoo Dozen Cakes twoo pound of Shuger pound of Sault two bars of sope one boxe of matches galen oil tree Smoke Fiche pound of Cream Chies two pounds of ote miel helf pound of tea one pound of butter dozen of egg pounds of pruens."—*Detroit Med. Journal.*

THE CAUSES AND TREATMENT OF EPILEPSY.

At the recent meeting of the New York Medical Society, Dr. W. P. Spratling (*Medical Record*) read a paper under this title. He said that nearly 85 per cent. of all epileptics develop the disease before adult life, and that one in 500 of the population is thus afflicted. Epilepsy in the parent reproduced itself in the offspring in 16 per cent. of over 1,000 cases studied. Alcohol had been a family cause in 14 per cent. A powerful factor in the causation of epilepsy is infantile cerebral hemorrhage. He has known three cases of epilepsy to follow psychic shock. The epilepsies of adult life, unlike those of childhood, have no fixed etiological basis. When they are not due to delayed family causes, one will commonly find gastro-intestinal intoxication or disease of the circulatory system.

Concerning the treatment employed at the Craig Colony, the speaker said that an effective plan of administering the bromides is by salting the patient's food with it in lieu of common salt. In this way not only is bromism largely avoided, but only about one-half the usual dosage is required. A study has been made of 29 cases of epilepsy that had been subjected to the operation of trephining, and the conclusion was reached that no permanent benefit had resulted.

⁂

Rats are now falling into the same disfavor with scientists as musketos. It is regarded beyond a doubt that rats are very active propagators of epidemics, and carry them a long way. The progress has been clearly shown in many instances, and an epidemic among rats precedes usually about a month its outbreak among human beings. An incoming vessel may have on board plague-stricken rats or mice, while the passengers and crew may be perfectly well, and so the vessel brings the plague to the port it enters. Illustrations of this are constantly given in the Yunnan district of China, where the plague exists all the time. At certain seasons of the year boats go down the river to Canton and Hongkong carrying rats; a few weeks later an epidemic breaks out there, and eventually reaches the rest of the world, probably taken by the rats in seagoing vessels. In the same way ships from Alexandria carry the cholera and other diseases to the Mediterranean ports by means of the rats, though the people on board may be free from any disease, and pass quarantine.

⁂

SELFISH INVALIDS.

In all my experience as a physician I have not seen more than a dozen men or women who have been improved morally by long-continued suffering. Acute illness and illness which brings the patient close to death often has a beneficial effect upon the disposition, but I cannot agree with the assertion which we frequently hear made in the pulpit that suffering is usually the means of refining. I have seen a few isolated cases in which this was so, but it is not the rule by any means. The chronic invalid is almost invariably selfish and pevish, and it is a hard task to find a nurse who can stand the strain of such a service.—Dr. S. Weir Mitchell.

⁂

Tid-Bits asks: "What is a baby?" and proceeds to answer as follows: The prince of wails, a dweller in Lapland, the morning caller, noonday crawler, midnight brawler, only possession that never excites envy, a key that opens the hearts of all classes, the rich and the poor alike, in all countries; a stranger with unspeakable cheek, that enters the house without a stitch to his back and is received with open arms by all.

ULCERATED PROCTITIS.

By J. F. Berlet, M.D.,
Philadelphia, Pa.

This case, which was of more than ordinary interest, after having resisted treatment for over three years by various methods, was brought to a favorable termination by three months' treatment with Glyco Thymoline.

Miss R., 28 years of age, healthy in every other respect. Was discovered to have a rectal ulcer. Dr. ——, the celebrated surgeon, confirmed the diagnosis and proposed divulsion of the sphincter, which was done, but which did not afford relief. Two years ago the operation was repeated, again with negative results. Examination revealed the presence of four ulcers in the rectum. The patient was discouraged, but wished me to continue in the hope of curing her.

I then began the use of solutions of silver nitrate, peroxide of hydrogen, protargol. Various suppositories containing iodoform, krameria, etc., in fact, I used everything I had ever read or heard of, but I failed to see any benefit.

I was about to throw up the case, when my attention was called to Glyco Thymoline in rectal troubles. Lost no time in instituting this treatment, injecting four to eight drachms into the rectum of twenty-per-cent. solution twice a day, and instructing the patient to retain it. The strength was gradually increased to fifty per cent, and the injections reduced to one per diem.

Improvement was noted on the third day —went on steadily until just fourteen weeks after beginning the treatment by Glyco Thymoline the patient was discharged absolutely cured, much to her and my unbounded satisfaction.

⁂

If some men were able to make money as easily as they make trouble, their wealth would soon become burdensome.—*Ex.*

⁂

IMAGINATION.

By Charlotte Becker.

I am the flame that springs from ev'ry fire
Of youth, or skill, or genius, or of strength;
I am the wind that smote Apollo's lyre,
And made sweet music through Eola's length.

I am the sands of ancient Egypt, where
Strange caravans pass through the warm, still gloom;
I am the phantom isles, the mirage fair
That lured forgotten races to their doom.

I am the waves that beat upon the shore
Of Camelot and harked to Merlin's call.
I am the cloak of darkness Siegfried bore;
The talisman that loosed Brunhilde's thrall.

I am the fragrance of the forest trail,
The whispered voices of the trees above.
I am the heart of romance; and the veil
That hides with tender touch the faults of love.

⁂

THE HIGHER PANTHEISM IN A NUTSHELL.

One who is not, we see; but one whom we see not, is;
Surely this is not that; but that is assuredly this.

What, and wherefore, and whence: for under is over and under;
If thunder could be without lightning, lightning could be without thunder.

Doubt is faith in the main; but faith, on the whole, is doubt;
We can not believe by proof; but could we believe without?

Why, and whither, and how? for barley and rye not clover;
Neither are straight lines curved, yet over is under and over.

One and two are not one; but one and nothing is two;
Truth can hardly be false, if falsehood can not be true.

A UNIQUE POEM.

The following remarkable poem, a literary mosaic, each line being taken from some well-known English or American author, whose name in every instance is given, appeared in a recent issue of *The Unique Monthly*. The author is said to have spent more than a year in its compilation:—

LIFE.

Why all this toil for triumphs of an hour?—*Young.*
Life's a short summer—man is but a flower—*Dr. Johnson.*
By turns we catch the fatal breath and die;—*Pope.*
The cradle and the tomb, alas! how nigh.—*Prior.*
To be is better far than not to be.—*Sewell.*
Though all man's life may seem a tragedy;—*Spenser.*
But light cares speak when mighty griefs are dumb,—*Daniel.*
The bottom is but shallow whence they come.—*Sir W. Raleigh.*
Thy fate is the commonest fate of all;—*Longfellow.*
Unmingled joys here no man befall;—*Southwell.*
Nature to each allots his proper sphere,—*Congreve.*
Fortune makes folly her peculiar care.—*Churchill.*
Custom does not reason overrule.—*Rochester.*
And throw a cruel sunshine on a fool.—*Armstrong.*
Live well; how long or short permit to heaven.—*Milton.*
They who forgive most shall be most forgiven.—*Baily.*
Sin may be clasped so close we cannot see its face;—*French.*
Vile intercourse where virtue has no place;—*Somerville.*
Then keep each passion down, however dear.—*Thompson.*
Thou pendlum betwixt a smile and tear.—*Byron.*
Her sensual snares let faithless Pleasure lay,—*Smollett.*
With craft and skill to ruin and betray;—*Crabbe.*
Soar not too high to fall, but stoop to rise;—*Massinger.*
We masters grow of all that we despise.—*Cowley.*
Oh, then, renounce that impious self-esteem;—*Beattie.*
Riches have wings and grandeur is a dream—*Cowper.*
Think not ambition wise because 'tis brave,—*Sir Wm. Davenant.*
The paths of glory lead but to the grave.—*Gray.*
What is ambition? 'Tis a glorious cheat,—*Willis.*
Only destructive to the brave and great.—*Addison.*
What's all the gaudy glitter of the crown?—*Dryden.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise." —TISSOT.

Edited by G. H. PATCHEN, M.D.

THE MECHANICAL TREATMENT OF PELVIC DISEASE.

A GREAT many people do not understand how the mechanical treatment of chronic forms of disease can produce the results that are claimed for it. They can see no causal relation between the means employed and the end attained. Only recently, a lady of long experience as an invalid—one who had suffered many things from many physicians—when applying for treatment, said: "Doctor, I am here to satisfy my conscience and my friends. I have tried nearly everything else with no permanent benefit, and I have come to you as last resort. If you think there is any hope for me, I am willing to stay with you three months if necessary. But, really, I have little faith because my ailments are all *internal* and I cannot understand how your processes, which are all applied to external parts of the body, can affect internal organs."

Parenthetically, it may be stated that before the three months had expired, she fully understood the nature of the treatment, both in a theoretical and practical way.

Perhaps the philosophy of mechanical treatment can be best understood by presenting, in detail, a case that came under our care last winter, that of Mrs. J. C. Ballantyne, forty-three years of age, from Brooklyn, Iowa, now of 1015 10th St., Des Moines, Iowa. The nature and history of the case is condensed from an account given me by her husband, under date of June 4th, 1890.

The commencement of her illness was very gradual. In 1875 she became noticeably weak, nervous and irritable, and by February, '76, was a confirmed invalid. In spite of available medical treatment, she continued to grow worse, her condition, no doubt, greatly aggravated by the accidents and incidents pertaining to several pregnancies, until March, 1883, by which time she was actually bed-ridden, suffering exceedingly from great general debility, deranged digestion, poor circulation and weak, excitable nerves. "Every attempt to get out of bed was followed by days of utter prostration." A few months later another physician was called, who gave the case every possible attention, and after a careful examination, found enlargement, prolapsus and retroversion of the womb, and "a tender spot caused by an old laceration that had never healed." This condition, he declared, was the cause of all her trouble, and to overcome it he gave the best local and general treatment at his command, almost continuously, for *over two years,* calling to his aid from time to time, eminent counsel from Iowa City and Davenport. But after exhausting all devices, such as pessaries, supporters, tampons of cotton, straightening with the sound, etc., he failed either to persuade the womb to stay in its proper position, or to get the patient out of bed. One of the counseling physicians, however, started curative measures in a right direction by advising "heavy rubbing of the muscles as a substitute for exercise," and the reading of one of Dr. Taylor's books, "Health by Exercise."

"We began at once to read and practise Dr. Taylor's methods. Our success was sufficient to lead us to correspond with Dr. Taylor and yourself regarding further treatment, and, as you know, we came to you at Burlington, Iowa, for treatment in May, 1886, taking her out of her bed to do so. She remained with you three and one-half months, until you removed to New York, and returned home very much better in every way, though still unable to walk. From that time she was able to remain out of bed and move around the house on her chair. She could also ride out of doors freely, and *was permanently relieved from the annoyance and distress of artificial support of any kind.*"

"We desired to follow you to New York, but the distance and expense caused us to postpone it. Over four months of the next year were spent at a neighboring sanitarium, and also three months of the following year, but she returned home at last no nearer walking than before. We then concluded that our only resource was to go to you at New York, and did so, early last fall, she taking her first treatment there, August 30th, 1889."

"On December 16th following she began taking a few steps alone, and on Christmas day she walked alone down two flights of stairs to dinner. Since coming home she continues to improve, being able to walk considerably farther than when she returned home, about three months ago. The gain to us from your treatment has been immeasurable, and we send this statement in the hope that some others, similarly afflicted, may, by reading it, be led to the same means of relief and with the same happy results."

This is certainly a very interesting case, and its final cure after so many years of suffering, and after the *absolute failure* of local treatment to even afford relief, is considered, by the patient and her friends, as something remarkable. However, to those familiar with the methods employed, the result was only such as was to be expected. The case is cited to show the applicability of the same principals and methods to all cases of the same nature. The treatment consisted entirely of mechanical massage and such Swedish movements as experience has demonstrated to be most useful in meeting the conditions presented.

The physician who so carefully examined the case, made a correct diagnosis, but notwithstanding his knowledge and skill he was powerless to afford relief because the general vitality was so low—the circulation was so weak—the nutritive action of the system so sluggish—that local treatment applied to the pelvic contents, aggravated instead of relieved the difficulty.

When the case was first presented for treatment at Burlington, Iowa, in 1886, much valuable work, in the right direction, with very good results, had already been accomplished, but still, to the patient, the condition was both deplorable and discouraging.

The "indications" for treatment were the same as when a diagnosis was first made, three years before, namely:

First—To secure better circulation, especially in the veins and capillaries.

Second—To insure better digestion and assimilation of food.

Third—To relieve nervous irritability.

Fourth—To restore to its natural condition the enlarged and misplaced uterus.

The first indication is a very difficult one to meet with the ordinary resources of medicine. Internal pelvic congestion diminishes the quantity and force of the blood circulating in the smaller vessels of the extremities As a consequence, the calibre of the vessels is diminished and the contractile power of their walls becomes weakened. Chemical action, upon which the heat of the body depends, is restricted by the sluggish circulation, and cold extremities, with pale, flabby, muscles, is an inevitable result.

External heat, no matter how diligently applied, will produce only a temporary effect. It neither permanently increases the natural chemical activity, nor stimulates the contractile power of the venous walls.

What drug is there which has the power to produce, by its internal effect, the changes necessary to secure the desired result? Voluntary exercise, for a patient unable to rise from the bed, is not to be thought of as a curative measure. Besides, were she able to be more or less upon her feet, it would result in nervous exhaustion long before enough could be taken to produce any beneficial effects.

The mechanical form of treatment affords a sure solution of this difficult problem. Rapid massage to the extremities by machinery at the rate of 1,000 to 1,500 changes of motion per minute, not only quickens the flow of blood in all the vessels of these parts, but, at the same time, distends and enlarges their calibre and stimulates the contractile power of their walls. It also intensifies the natural chemical activities by which heat is physiologically produced from within, and these effects soon become self-maintaining and permanent.

The second indication, so difficult to satisfy by the usual facilities afforded by medication, is easily accomplished by the means under consideration. Whatever else may be known or believed concerning nutritive processes, it is certain that digestion and assimilation depend upon physiological expenditures, and the power to digest and assimilate food, ordinarily goes, hand in hand, with the demand made by expenditures for new material. A bed-ridden patient suffering from a chronic disease which, by its nature, tends to invalidate *all* recuperative power, cannot make enough expenditure to create an increased demand for new material—in fact, the physiological powers are really unable to properly eliminate the products of the little expenditure that is caused by the continuous operation of functions necessary to maintain animal life. The taking of more food, or of especially prepared foods, is in no way helpful, but, on the contrary, only adds to the physiological embarrassment already present. Tonics may whet the appetite and stimulate nerve centres controlling the activity of some of the digestive processes, but the demand for food created by this means is not real, because it does not arise from previous expenditures, and the actual condition of the patient is not in the least improved.

The only possible curative agent is one which will increase physiological expenditure and thereby make a legitimate demand for the digestive and assimilation of new material. *The power to digest is always and under all circumstances equal to the legitimate demand in the system for more food.*

Rapid massage fulfills this indication completely, because, although entirely passive, it adds to the waste matter of the system, by wear and tear, like ordinary exercise, and, at the same time, increases the oxidizing power of the system, by which means the waste matter is prepared in a form to be eliminated with greater facility.

The third indication—relief from nervous irritability—is seldom permanently afforded by drug medication or its usual adjuncts. Sedatives, while they may have an immediate quieting influence upon the nerves, produce this effect only by inhibition, or suspension of normal expenditure of nervous energy, which is, in reality, harmful, as its tendency is to weaken instead of strengthen nervous control. The endeavor to repress manifestations of nervous energy is like the attempt to hold in check the current of a stream by a dam or other artificial obstruction. When the barriers are removed it flows again with increased impetuosity and irregularity. Besides, the use of sedatives derange the digestive powers to such an extent that their prolonged use is positively injurious.

What is needed is control, not of the *manifestations* of nervous energy, but of the *sources of nervous power*, and this can be done in only in one way—the natural, physiological way—through the muscular system. "The muscles and nerves stand in a counterpoising relation to each other. The ratio of action and expenditure between them is physiologically equal and balanced." "All expenditure of energy, to the support of which nutritive material is supplied, pursues two principal channels; that of the muscles on the one hand and of the nerves on the other." When the muscles, from disability and disease, fail to receive their share of the nutritive supplies, the excess is appropriated by the nerves and results in undue and unregulated nervous action. The true antidote to this condition, must be something that will increase the demand in the muscles for nutritive support. The remedial action of rapid massage is two fold. By it, nutrition is made available to the muscles in excess of the usual demand, and, at the same time, and, by the same means, the distribution of blood to the nerves, upon which their nutrition depends, is proportionately diminished, and, hence, a healthful equilibrium is soon established.

The fourth indication—to restore to a normal condition the size and position of the womb, is the most important thing to accomplish. A congested part or organ always *contains too much blood,* and the circulation within the part or organ itself is also restricted. The blood vessels leading *from* the area of congestion are unable, either from relaxation, over distension, or obstruction at some point in the system more or less remote, to carry forward the blood currents with healthful vigor. Mere depletion of the local surplus, by whatever means or procedures, can at most, only result in *palliation.* Such means do nothing to prevent the blood or other fluids which have been temporarily withdrawn, from being almost immediately replaced by the operation of the same causes that previously existed. Usually the part or organ most overpowered by congestion, has contributed the least to this result. It is the *last* link in the chain instead of the *first.* Curative measures employed with any hope or idea of permanency must consider and be directed against those causes which, singly or conjointly, have produced the condition for which relief is desired. The first step toward permanent removal of stagnation and congestion in the suffering organs *is to make a place to which the surplus fluids can go.* This is the very important and necessary thing that local treatment however active and powerful *cannot do.* Once successfully conduct the pent-up and disease-engendering fluids into the free channels of the general circulation, and the beginning of a new and healthful condition is established, *and it will remain.* Rapid massage applied to the extremities and other parts more or less remote from the seat of congestion, not only invites but *compels* the excess of fluids to enter these regions and produces the effect of a *drain* upon the local stagnation. At the same time it prepares a place for the excess by enlarging the dimensions of the veins and capillaries, shrunken and diminished by weakness and disease. It also accelerates the circulation of the blood and intensifies the chemical activity always operative in it. The noxious properties resulting from stagnation are destroyed, and what was formerly a burdensome, useless, and even harmful accumulation, becomes a part of the active, vigorous and healthful currents of vitality. Removal of uterine congestion and enlargement should precede, or at least accompany, all directed efforts having for their object the restoration of its normal position. Having accomplished this, displacement of any kind or degree is more easily rectified. But how shall the uterus be maintained in its proper place? *Simply by reinforcing and restoring the powers of sustentation that nature has provided.* In health, the natural powers of sustentation are adequate for all conditions and emergencies.

"No distinct mechanical supports of the contents of the pelvis exist in anatomy, and none are required. Malpositions do not occur in consequence of such deficiency, nor can local ill-conditions of the pelvic contents be rectified by an artificial supply. Sustentation of the contents of the female pelvis is, on the contrary, *functional and automatic.* It does not reside in nor appertain to the sustained organs but exists in their environment." Several agencies contribute to the perfect operation of this function, but the principal—the all-controlling one—is "abdominal rhythm" or the undulatory, wave-like motions conveyed to the abdominal and pelvic organs through the medium of respiration. In health, at every breath the diaphragm acts like the piston of a pump. The up-heaving motion causes a suspension or lifting up of all the parts or organs below it, and prolapsus or serious displacement of the uterus is impossible as long as this function is maintained in its natural vigor and integrity.

"This spontaneous organic motion is subject to augmentation as well as restriction—the former is remedial—the latter is the opposite." Through artificial devices and methods, that is, by cultivation, the power which urges upward the pelvic contents may be *enormously increased.* It then becomes amply sufficient for all curative purposes.

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VIBRATORY THERAPEUTICS IN OZÆNA.

By Professor Ch. Colombo (Rome).

The patient was a young girl of lymphatic temperament, with marked bradytrophic symptoms, and a neurotic family history. At the age of twelve she began to suffer from troubles of the mucous membrane of the nose. The irritation spread from the nostrils to the retronasal and pharyngeal mucous membrane; there was also cough and profuse expectoration. At the same time headache became established, most marked over the spheno-ethmoid region, and always increased after a night's rest.

The nasal secretion had become slightly purulent and extremely malodorous, and the voice became distinctly nasal in tone. In this condition the patient, then thirteen and one-half years old, was taken to a rhinologist, who immediately resorted to the heroic remedy of cauterization, repeated five or six times in the space of two months. The result was negative; the symptoms not only continued, but became worse. Eight months afterwards she consulted another specialist, who again cauterized the parts, using an electric cautery, and prescribed daily irrigations of water containing salt or iodine for two months; and afterwards a course of inhalations containing the same substances, in a well-known health resort. This treatment was scrupulously carried out, and slight improvement followed. By this time the patient was fifteen. So far as the genital functions were concerned, puberty was not yet established, but in the psycho-nervous sphere it was in full vigor.

It was for these reasons that I directed my attention to the general condition of the patient, as well as to the local trouble. I subjected her to a dietetic and mechanical *régimé* with a view of stimulating the general circulation and the organic exchanges, having recourse to systematic medical gymnastics, to hydrotherapeutic and electrotherapeutic measures, and to hypodermic injections of iron and strychnia. At the same time the appearance of menstruation was hastened by inducing some congestion in the organs of the pelvis by long and constant applications of the "exocarde" of Forlanini.

To deal with the local trouble in the nose, I resorted to vibratory therapeutics carried out in the following way: A small metallic sound, about 3 mm. in diameter and 28 to 30 cm. long, was roughened at one end and a little pledget of cotton wrapped round it, of such a size that it could easily pass into the nostrils. The cotton, saturated with a medicated solution, is brought into contact with as large a surface as possible of the nasal mucous membrane, and then, tightly holding it between the thumb and the index and middle fingers, a soft and rapid vibratory movement is imparted to it, which is transmitted from the cotton to the mucous membrane.

For the first month the introduction of this cotton pledget, although it was very small, was very difficult and painful, and vibrations could be practised for only a few seconds, and only over the alæ of the nose. Then little by little the pledget could be pushed higher up, and the patient could bear gradually lengthened sittings. At the end of four months the covered sound could easily be brought into contact with the whole nasal fossa, and even the pharynx, without pain, and the pledget emerged only a little soiled with thick, slightly fetid mucus; but there was no pus, crusts, nor blood. The auditory troubles and conjunctivitis were cured. The headache, however, persisted, although less violent, and there was still pharyngeal catarrh and nasal tone in the voice.

Thanks to the general treatment, the circulation had become more vigorous, and menstruation was established; and thus the pathological condition of the nose progressed towards recovery. Hyperæmia, and therefore the tumefaction of the mucous membrane, diminished little by little and disappeared. The pharangeal catarrh and the odor of the secretion and headache also disappeared. The cotton pledget, twice the size of that formerly used, could now be inserted, and it emerged untainted with any secretion. There was no trace of erosion or ulcer. After about nine months of treatment the patient was sent home quite well.

The results of the trial made in this case, and in a dozen similar ones treated in succession, convinced me that in the treatment of ozæna attention ought to be directed both to the local troubles and to the general pathological condition of the organism, and especially those of the organs of reproduction. Further, I feel quite sure that the most effective means to combat hyperæmia of the nose, upon which are engrafted the processes of decomposition characteristic of ozæna, is vibrotherapeutics or vibratory massage, by virtue of its stimulating action on the vasomotor nerves.—*Journal of Physical Therapeutics,* London.

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SOME NOTES ON THE SWEDISH MOVEMENTS AND MASSAGE.

By Otto R. Lofstedt, Medical Gymnast.

Some physicians have the impression that by Swedish movements are meant ordinary, active gymnastics, and that massage is a kind of magnetic treatment, or perhaps little more than thorough rubbing. Swedish movements and scientific massage, however, are based on accepted physiological laws, and their application is possible only by those who are rightly instructed in these basic principles. The movements have nothing in common with ordinary gymnastics; nor has scientific massage with magnetism or rubbing. Finally, the expert medical gymnast and masseur never claims to cure all kinds of diseases by his methods. He knows this to be impossible, but he also knows there are some diseases which can thus be cured more quickly than by any other means. In most cases, however, to effect a cure, medical treatment must be used in connection with the Swedish movements and massage, just as it is used in appropriate cases in conjunction with electricity, baths, etc.

The question is often asked, who shall apply the auxiliary treatment? The answer to this is that with a little study and practice any physician may become competent to treat neurasthenia, insomnia, acute muscular rheumatism, sprains, etc. Other cases, such as sciatica, ankylosis of years' standing, chronic constipation, heart disease, or spinal curvature require the attention of a specialist. The medical gymnast who has obtained his training in Sweden, the birthplace of the system under discussion, has taken a long and arduous course, covering a period of three years, and thoroughly grounding him in anatomy, physiology, pathology, hygiene, diagnosis, principles of the movement treatment, and the use of exercises for general and local development. He is indeed a specialist in his department, and peculiarly fitted to deal successfully with the diseased conditions enumerated, not to the exclusion of the physician, but rather in cooperation with him. The medical gymnast has not only the dexterity, patience, time, and special facilities requisite, but also the advantage of a wide experience which prevents his being discouraged by any apparent lack of success in a given case, this apparent failure sometimes persisting for months. He knows what he has accomplished; he has the confidence born of knowledge and previous satisfactory results.

My own work extending over a period of nine years in Boston, during four of which I have served as masseur and gymnast in the Homœopathic Dispensary's Orthopædic Department, has made me feel that there is a great need for a more general understanding among physicians of the benefits derivable from a judicious resort to the Swedish movements, with or without scientific massage. Many cases which have come to seem hopeless may often be wholly cured or markedly benefited by these methods. I find that even when they are resorted to, physicians not infrequently make the mistake of recommending their patients to try movement or massage treatment only two or three times a week, on the ground that such patients are too weak to receive treatment oftener. This is a mistake, as the weaker the patient the more frequently should treatment be given, say once or even twice a day. The effect derived from one treatment should not be lost before the next is given. It is the treatment which renews the patient's strength, but when the effect is allowed to wholly pass off a stiff or tired feeling may be experienced, causing the patient to conclude that no benefit is being derived or that actual harm is being done.

It is impossible to report at length the results which have been obtained by the expert use of the Swedish movements, especially in spinal curvature. At my studio I have many photographs of cases of this kind cured in from three to six months, the ages of the patients being even as advanced as twenty years. But my chief desire is to enlarge the acquaintance of the profession by these brief notes, with the genuine assistance in their work derivable through the Swedish movements, and to increase their interest in this scientific and reasonable curative method in properly selected cases. —*New England Medical Gazette.*

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FOR MEN WHO WORK WITHOUT REST.

By Herman O. Dreisel.

Anatomy and physiology are teaching us that man is intended for action. The jointed skeleton, the contractile muscles, the controlling nerves, and the power-supplying apparatus of digestion and circulation all proclaim alike that the human body is especially well constituted for activity. This activity finds its natural expression in different kinds of labor or exercise, be it mentally, physically, or both combined. When performed properly, *i. e.*, with due regard to the laws and penalties of human physiology, labor and exercise become a benefit and a blessing; but when carried to excess and regardless of the bounds of nature, they change into an abuse and curse to mankind.

The tendency of modern life is to pervert industrial labor into a morbid and destructive activity and, consequently, we see the path of human industry strewn with corpses and cripples—the victims of over-exertion.

For an example look at John D. Rockefeller; he is a product of the modern doctrine "Work, work, work!" As a result of his former excessive mental strain his diet now consists of nothing but stale bread and skimmed milk. Over-exertion has left us the "oil king" in a worse condition than is the poorest but mentally well-balanced laborer.

The following is an excerpt from an interesting article by E. Bodek, a medical professor of Berlin, Germany, which treats of this subject and clearly points out the penalties that threaten not only the giants of industry, but men in all walks of life, athletes not excluded:

"Force and energy is what all mankind desires. We all want to be strong physically as well as intellectually. Never has there been a time when the struggle for existence has been so fierce as in our present day; never has man had to strain his muscles and nerves to such an extent to be able to exist."

What is, then, this force that we all want, the force that enables us to live?

Where does the mysterious force come from, and from where does its antithesis, exhaustion, come? Why do we get tired?

Should there really be no way to do away with our fatigue, so we may be able to work without needing rest?

Is there nothing that will strengthen us, nothing that will increase our energy?

Should it not be possible to squeeze twice as much gold out of our brain and muscles?

What will enable us to pass our neighbors in the race?

Solve any of these questions and you will win a fortune.

My kingdom for a horse!

And the first to buy the horse would be those who do not need it, who already have amassed so much stored energy in the form of gold, stocks, bonds and real estate that you would think they could well afford to take a rest.

To explain this question of the nature and origin of our force and energy we must first do away as well with the old idea, that the force is a mysterious fluid in us, as with the modern that it is simply a product of our food.

There are plenty of people who still believe in elixirs and tonics, that should have power to double our strength, and still more who think that plenty of rare roast beef and steak will make us feel like giants.

Our force is not fluid stored in us, nor is it a product of our food.

Our power, physical and moral, may be compared to the spring of a watch.

But who winds the watch when it has run down, and how can we prevent it from running down? That is the great, the all-important question.

Modern science has shown that the oxygen that we extract through our lungs from the atmosphere is the real source of life, as far as it alone builds up the tissues in our brain and body that have been worn out by our daily work.

When we burn coal we create heat and this heat, which is in a form of energy, we are able to transform to mechanical work, but besides the heat we also get smoke and ashes from the burning coal.

When we work, no matter whether we lift a heavy weight or produce a thought, we use part of our blood, and what is left may be compared to the smoke and ashes, and this smoke and ashes must be disposed of that they shall not act as poison on us and stop our organism in its functions.

It is not enough to take more nourishment; we must get rid of the poison just as necessarily as we must rake out the ashes under the boiler if we want to keep the engine going.

If we do not do this, the poison will soon get too strong for us, we will get more and more exhausted and at last break down completely.

We can, therefore, safely say that all work deteriorates the blood, and if we use up the oxygenated blood faster than we are able to produce or renew it we become run down and exhausted.

The change of work is not enough; if we have overworked ourselves we must have absolute rest, and this rest we get during our sleep.

Every one ought to study himself and be careful not to overtax his strength. He will be able to do a greater mount of work if he does this, and will find that it never pays to crowd two days 'work into one day, as is so often done.

You may be able to do it for a short time, but the punishment will come, the mechanism will break down. It is bound to come, and more will be lost than has been temporarily gained.

It is one of the greatest evils of modern time that we exhaust our nerve force, that we burn up our coal too fast, without stopping to get rid of the ashes and smoke, and though we very often are conscious of this, we still go ahead until finally we are forced to give it up after having made a wreck of our body and brain.—*Mind and Body.*

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A GOOD many physicians believe that they are legally bound to attend every professional call they can—that poverty, unwillingness or neglect to pay for former services are not sufficient excuses under the law for not going. This is a mistake. The highest courts have decided that his skill and knowledge are his own, to use or not as he chooses. If, however, a physician takes charge of a patient and later abandons it he is liable to such damages as may ensue unless he gives such timely notice as will enable the party afflicted to procure the services of another physician.—*Iowa Health Bulletin.*

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ORGANIZED WATER AS A FOOD.

By Prof. John Uri Lloyd, Ph.D.,
Cincinnati, O.

Some years ago a professional friend declined a dish of soup, stating that he did not care to load his stomach with so much water in order to obtain the trifling amount of nourishment it contained. Shortly after this, the writer listened to an able paper read before the Cincinnati Section of the American Chemical Society on the subject of "Foods," and in this paper was struck by the fact that the nutrient value of the respective foods was determined through consideration of materials absolutely free from water, which brought to mind the observation of the professional friend before alluded to.

Without a doubt the majority of people accept that the function of water in food substances is that of a solvent only, or as an inactive vehicle provinced only to carry food to tissue and bone. They believe that the object of water as a drink is to dilute the fluids, wash impurities from the blood, and carry off worn-out tissue. Water is not seriously considered in the light of an integral part of food by any one, such solid substances as starch, sugar and nitrogenous and fatty tissues being unusually cited as the constructing and heat-producing agents. Our works on digestion and on general physiology state that most foods are three-fourths water, and the human body, bones included, over two-thirds water; but yet consider water as irrelevant as a nutrient. The upbuilding and tearing down of tissue, the production of salts and products of disintegration, both normal and abnormal, are studied solely from the basis of molecular change, in which nitrogen, hydrogen, carbon and oxygen play their respective parts as such.

With this thought in mind, let us for a moment consider the part of water as an organized structural agent in certain salts, because many inorganic crystals depend for their form and structure on water of crystalization. But, it may be argued, after having gone through the list and studied their various deportments, that crystals are dead structures; organic bodies are now the subject of discussion.

Take, then, the jelly fish, that transparent, quivering, vitalized something, shaped after laws as uniform in action as a mathematically-made creature can be. It possesses the power of voluntary action and lives upon structures seemingly much higher in life's scale; has the power of attacking the higher animals, and possesses in itself an individuality that renders it a living, moving creature. On being dried, it almost disappears, leaving a film of varnish possessed of so little solid matter as to disturb the thought of one who attempts to argue that the water of this creature is simply the water of association, devoid of any other quality than that of ordinary water.

Consider some species of fungi that spring up in a night and in the sun the next day dry to bare fragments of themselves. In their natural condition these water-structures partake not only of the attributes of their respective species, but are most marvelously exact in every detail, possessing qualities that seemingly forbid the thought that the great mass of water present is simply a carrier of insignificant amounts of solid matter.

The cabbage, the apple, the fruits of our orchards, the vegetables of our gardens, contain in all cases an enormous amount of water, if we consider the fluid part of the mysterious liquids present in vital juice and organic structure as simply water. Here we are confronted with conditions in which the relationships between the large amount of water and the small amount of solid are such as to tolerate the view that this water combination may be a something very different from pure water, or water obtained by tissue destruction. With such complex examples in mind, we are led consistently to inquire whether such dishes as soups and other aqueous liquids, and water-bearing or water assimilating foods, can, as tissue feeders, be in themselves anything beyond simple solutions and solid matters in water.

In order to make a nourishing soup it is not alone necessary to mix water and solid material. Good soup of complex composition requires for its production a certain amount of manipulation, such as boiling, seasoning, and cooking. These processes are purely physico-chemical, and productive of numerous dissociation and combination products.

The question is, has the water that is used in the making of a soup, by the action of heat, simply dissolved certain salts and tissues, or has it combined with organic constituents in a way that will make a nourishing liquid, or a series of water combinations, in which water exists, it is true, but with altered qualities?

Nitrogenous food becomes a supporter of nutrition in a manner impossible in a case of pure nitrogen, which is not available as a food and cannot be assimilated as such. Carbon, as carbon, pure and simple, is useless as food. Hydrogen serves its purpose as a food only when in combination. These three bodies are constituents of food, and when obtained by destruction of flesh and fat are cited by food theorists as a basis for calculating food values. Yet, in a state of isolation, they are not available as foods. Only when combined with water, or by means of water, do they become tissue builders or heat producers, and of this fact the analyst takes no account whatever beyond a bare reference to the presence of water as such. However, the object of the writer is not in any way to oppose the work that has given us the values of these elements as such, in nutrition. These investigations need not be disturbed, nor need the vital importance of these elements, even if full credit be given the importance of the water molecule.

Nations widely separated may thrive upon food structures unknown to each other, but never does man or animal dispense with water of combination, and most animals must drink water as well as eat it. This fact of observation brings us to the question before intimated, as to whether it is possible for liquid foods or foods hydrated during the process of mastication and digestion, to be possessed of chemical characters as yet outside the equation of our known chemical equivalents? In other words, do undetermined molecular combinations that ensue during cooking, as well as mastication, create complex nutritive water structures capable of carrying their qualities to the tissues they finally reach and nourish by reason of their easily alterable structures?

We call water driven off in the drying of fruit or food of any kind, water separation. May it not be rather the result of structural molecular decomposition? In the cooking of dry foods we not only change their structures as regards relationships of solid constituents, but add thereto the qualities that combined water gives under conditions as yet obscure. The same is true of vegetables and fruits. Should we not look on such water, necessary as it is to life, digestion and tissue replacement, as an integral part of food, instead of simply a carrier of food? It is indeed probable that the student of dietetics must soon broaden his field and consider foods in their structural entirety, rather than from their analytical created ultimates. The method of the analyst now is to first kill the animal or vegetable, then destroy the tissue, then disrupt the molecule. The final result gives him inorganic elements and a few characteristic chemical structures on which he bases his tables concerning food valuations. Is this just, in the light of what we know concerning the province of vitalized structures as a whole? Is it rational, in the light of what we know concerning the worthlessness of chemical elements in foods? Is it not more rational to accept the exceptional value of albumen and other nutrients, as typical foods, rests on the water compounds so nearly in accord with tissues craving just such vitalized water-bearing structures?

But to pass to a point beyond molecular water itself, which in both crystal and colloid tissue is capable of expulsion by desiccation. When organic matter is perfectly dried, a considerable portion of the residue is found to be composed of elements that might have been derived from, or subsequently might be combined into, water. Take from desiccated tissues the elements that might have come from water dissociation, and, comparatively speaking, we have but a small amount of residue.

Consider the soups, custards, gelatin, pies, fleshes, fish and fruits of all kinds, and even bread, which contain in themselves enormous amounts of water, in most cases the larger share of their weight being water, and observe the composition of the solid materials that remain after they are dried. These, too, are found to be made up of elements that in themselves may have been derived from water—fragments, we may say they are, of broken molecules.

Consider the carbohydrates, dry as dust, sugar being typical of these, in which the elements of water are combined with carbon in the very proportions necessary to form water. The largest amount possible of a water-producing compound (pulverulent water), is here artfully stored in contact with the great combustible carbon. We have series of food solids, differing only in the proportion of water present (sugar, starch, glucose, etc.), and that many combinations of one substance and water in different proportions exist, is shown when we consider series of hydrated salts exemplified by such bodies as the crystaline manganese and sodium sulphates, etc., etc. We should not suspect that such have an existence but for the fact that as definite water compounds, they assume a visible form and become sensible to sight and touch. But of the liquid outreaches connected with changes in colloidal metamorphosis, we know next to nothing. If this shading of compounds, differing only in water compounds, is true of such elementary salts and solid foods, may not water be combined in an untold number of liquid organic structures that are as yet invisible, uncrystalizable, unreachable to our senses as organized bodies?

But enough for the present. In a time to come it may be clearly seen that students of food and digestion have not given sufficient prominence to the one thing that supports life, governs life, nourishes life, that feeds all structures, that constitutes the larger share of all organic tissues, but that, strangely enough, in itself is now viewed as a carrier only of something else.

We feel justified in anticipating that the immediate future will give a more extended view than the circumscribed atomic theory affords, which to this date, as a stepping-stone, has served the world well. Shall we then perceive that the vitalized water of organized water-bearing foods, and the combined water of such foods as carbohydrates and fats, are the foundations of the real foods for tissues, affiliating other materials, such as the nitrogen, carbon, hydrogen, necessary in their field, but subject to the dominating agent, water? Organic chemistry has been defined as a study of the gigrations of the carbon atom. May we not anticipate that organic structures will be defined as the products of the migration of the water molecule?

Possibly the makers of food products of the future will give less attention to analytical values concerning dead elements and more to vitalized and vitalizing structures in which available water is conspicuous. Possibly it behooves us even now to ask if a closer inquiry into the water molecule, *the vitalized or easily vitalized water molecule* and its many shadings, may not open up a field for the construction of more rational food produces.—*Medical Gleaner.*

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WONDERS OF HUMAN ENDURANCE.

By Robert Lloyd.

On March 24 last M. Garnier began his attempt to beat the piano playing record at the Café Martino in Paris. He undertook to play the piano continuously for twenty-seven hours, except for brief intervals, amounting in all to ninety minutes.

He began at nine o'clock in the evening, and played without rest until two o'clock in the morning. He took brief intervals for food about every four hours after that, but at five o'clock the next evening cramp seized his fingers. However, massage relieved him, and he kept on. His hands swelled dreadfully, and his face became congested. His arms had to be propped with cushions. However, he stuck to it till midnight, winning his wager of £40, with fourteen minutes in hand. Then he collapsed, prostrated with a severe nervous attack.

Even more startling was the feat of Bancia, who, at Venice, succeeded in playing for fifty hours on end, with only three brief rests. He, however, played slow and easy music compared with the pieces performed by the plucky Frenchman.

No other creature on earth can undergo such tremendous fatigue over long periods of time as can man. In speed over short distances there are, of course, dozens of animals—such as the horse, dog, and hare—with which man cannot compete. But in long-distance races man well trained can wear down the best of them.

A really amazing pedestrian feat was accomplished by that famous walker, J. Hibberd, of London. In 1899 he walked from Shoreditch Church to Yarmouth—a distance of 124½ miles—in 27 hours and 46 minutes. He was 50 years old at the time, but would without doubt have done the distance in an hour less if he had not missed his way, and covered several unnecessary miles.

Every day the average man generates a force of 3,400 foot-tons—enough, that is, to raise 3,400 tons a height of one foot. Only 10 per cent. of this force is available for other work than that of keeping the body warm. But how much the residue may be exceeded by a strong man in good training is proved by the fact that McKenzie, winner of the race last year to the top of Ben Nevis, was working at the rate of 11,000 foot-pounds per minute during the sixty-eight minutes the race lasted.

Speaking of mountain climbing, Sir Martin Conway's Alpine record of the year 1894 is another startling proof of what man is physically capable of doing and enduring. Sir Martin's tour lasted eighty-six days. During that time he covered 1,000 miles on foot, ascended twenty-two peaks of an average height of 11,500 feet, and crossed thirty-nine lofty passes. It has been calculated that a man who climbs a 7,000-foot peak in five hours exerts enough energy to raise five fully loaded locomotive engines one foot from the ground.

Long-distance cycling gives a further proof of the enormous endurance of man. In the six days' international cycle race of 1899, the winners—Miller and Waller—covered 2,734 miles between Monday morning and Saturday night. Brown, the vegetarian cyclist, recently rode on open roads, often in great heat, and again under pouring rain, 1,800 miles in 199 hours.

Although man is not well fitted by nature to be a swimmer, and is one of the few land creatures who cannot swim without being taught, yet in long-distance swimming he can give points to any other land animal. Montague Holbein, in September, 1899, swam 46 miles in 12 hours.

Even in the matter of fasting there are few warm-blooded creatures who can emulate such a performance as the forty days' fast of Tanner.

Man's memory is one of his most wonderful attributes. What is possible in this direction was proved a year or two ago at Naples, when a professor of rhetoric—Arlini by name—repeated from memory 15,350 lines of Dante. He began to recite at eight o'clock in the evening, and went on till a quarter-past two o'clock the next afternoon. He was thus at work for 1,095 minutes, his rate being 830 lines an hour. He only stopped for a minute or two at long intervals to sip a little brandy and water. Almost equally startling was the speech made by Count Lechter in the Austrian Parliament two years ago. Beginning at nine o'clock in the evening he spoke until nine o'clock the next morning. During these twelve hours he never sat down, never repeated himself, and never failed to hold his audience.

Amazing exhibitions of long-sustained brain power have been given by chess players. Pillsbury recently played sixteen games of chess simultaneously, without seeing the boards of any of his opponents, and at the same time played a game of whist and chatted to his friends. What is more, he won all these games but one.

Man can eat more, lift more, carry more, and bear more pain than almost any other creature. Leysseus, the Belgian glutton, who died last year, once ate sixty-nine hard-boiled eggs at a meal. A man named Nightingale recently carried a sack of sand, weighing one hundred weight, four miles—from Ilford to Bow—in fifty-nine minutes. A night watchman over sixty was recently run over by an engine at Queen's Road, and his right foot crushed, but he walked some distance along the line, descended sixteen steps of a ladder, and walked another twenty-five yards to his hut. He was still alive when found, four hours later.—*Chicago Tribune.*

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Book Reviews.

HAND-BOOK OF MEDICAL AND ORTHOPEDIC GYMNASTICS, by Anders Wide, M.D., Lecturer in Medical Gymnastics and Orthopedy at the Royal Carolean Medico-Surgical Institute, Stockholm, with a Frontispiece and 94 Illustrations in the text. Second Revised Edition. New York: Funk & Wagnall's Company, 1902.

IN looking over the pages of this book, in a critical manner, I cannot help being pleased with the efforts of both the author and his publisher. It is a volume which should be found in the office of every scientific physician. The chapters explaining the physiological action of the processes employed and the manner of giving them, are so well and so plentifully illustrated that the physician is enabled to gain a quick insight into the subject. The knowledge obtained by its careful perusal will also enable the physician to determine whether or not the masseur or masseuse, whom he may wish to employ, is qualified to give his patients the fullest benefit which the practice of this valuable adjunct to medicine is able to afford.

In the chapter on heart diseases the physician will learn the great benefit which patients may derive as well as the fact that the nowned combinations of Nauheim, Oertelenus and Zander methods of cure can be obtained in this and other cities, in America, and that the usual methods of Ling can be given at the bedside. This information should be encouraging and contagious for the Americans, as I believe statistics show that heart disorders are more common here than abroad.

In the chapter on diseases of the respiratory organs will be found many new ideas, physiologically correct, in regard to their treatment, and here, more than in any other chapter, is it shown how insufficient the usual massage operations are in supplying the action needed to change pathological conditions into those that are physiological.

The specialist must not be jealous of

mechano-therapy if it makes an inroad upon his field of practice. It is well known that in temporary catarrhal conditions of the vocal chords, laryngeal vibrations and jugular massage will more quickly restore the speaker's or singer's voice than any other means, as it loosens the mucus from the membranes and relieves the existing congestion.

In the chapter on diseases of the nervous system it is shown, as I have always believed, that to obtain the best results, the combination of medical gymnastics and massage is necessary, although many eminent specialists, including Dr. Weir Mitchell, rarely use anything but massage.

Of great interest, also, are the remarks concerning when, or rather, how soon, should massage and gymnastic treatment be given after paralysis has occurred.

In the treatment of diseases of the muscles, joints, and in constitutional disorders, many features of importance are brought out which the physician should become familiar with before prescribing massage treatment.

The treatment of spinal curvatures is most ably and fully discussed and carried out. I will especially advise the family physician to carefully study it, as I have often seen young children permitted to go without making any special effort to correct it, under the impression that the child will naturally grow out of it. Many such cases, I regret to say, have grown in the opposite way, that is, into an incurable deformity.

The chapter on diseases of the kidneys, bladder and the male genital organs is very interesting and instructive. The results claimed will not be doubted when the power which an increased or decreased blood supply exerts in controlling congestion and other disorders of nutrition is fully appreciated and understood.

The book barely mentions disorders of the female pelvis. This omission is very much to be regretted and difficult to be accounted for, for the success which Professor Brandt and his followers have obtained by the methods they employ, which methods, in spite of their disgusting features, are highly recommended by the most eminent specialists of Europe, can not be unknown to the author.

Let us hope that it is those very features which influenced him to ignore the treatment.

But there is no excuse, except ignorance, for not at least *mentioning* the much more scientific and rational methods of treating all pelvic diseases of women, originated by the late Dr. George H. Taylor of this city, and made known to the world in his work on "Pelvic and Hernial Therapeutics," and in numerous articles contributed to various medical journals.

It is to be hoped that a third edition of Dr. Wide's most valuable treatise will soon be called for, and that in this edition the author will see to it that the mechanical treatment of pelvic diseases will receive the consideration its importance demands.—*W. J. K.*

DISINFECTION AND DISINFECTANTS. A PRACTICAL GUIDE FOR SANITARIANS, HEALTH AND QUARANTINE OFFICERS. BY M. J. Rosenau, M.D. Illustrated. Philadelphia, P. Blakiston's Son & Co., 1902. Price, $2.00.

The author introduces his brief and pointed preface to this well-written and valuable work in this apt and unique as well as appropriate manner:

"I have made mistakes and I have seen others make mistakes in learning what, how, and when to disinfect. This book has been written with the hope that it may help others who have to battle with the infection of the communicable diseases. . . . It has been my aim to state the important facts tersely and in a form to be of practical use to the disinfector."

To say that the author has accomplished his object and fulfilled his promise is the highest praise that could be accorded him.

If we were to criticize the publishers' hand in the production of the work it would be in relation to the somewhat crude character of some of the 96 illustrations. And even here we are bound to admit that they are practically apt and lucid, if not always quite as artistic as the modern reader is inclined to demand and expect. The work is a safe guide and should be in the hands of every physician and every hygienist and sanitarian.

THE PUBLIC AND THE DOCTOR. By a Regular Physician. Dallas, Texas, Dr. B. E. Hadra, 1902.

The object of this little hand-book seems to be to inculcate a better understanding between practising physicians and the general public. Its careful perusal by reasonable people would undoubtedly tend to correct many erroneous impressions now very prevalent, and would materially lighten the burdens and brighten the everyday experiences of hard-working and conscientious physicians everywhere. If the publisher can reach this class of practitioners, convince them of the value of the effort, and offer the books at a price sufficiently low, perhaps he will win a reasonable degree of success.

LIFE EVERLASTING. By John Fiske. Boston and New York, Houghton, Mifflin & Co., 1902, 16mo., gilt top. Price, $1.00.

Most of our readers no doubt know something of John Fiske, one of the most brilliant and profound of the intellectual giants of the age; but we venture to say that not one in a hundred of those who class themselves among book lovers and those who read progressive works of leading historians, philosophers and thinkers—for John Fiske was all these—is aware of the scope and extent of his contributions to the literature and logic of the last quarter of the century that is past.

This attractively issued little volume treats the scientific aspect and bearings of the doctrine of a future life. To those of our readers who have not seen it, it will prove a delightful introduction to this prolific writer, whose premature demise seems an incurable calamity to the nation and to the world.

Of some of his other works—in all there are twenty-five volumes—we will have something to say in the near future.

Every thinker, regardless of his particular creed or religion, longs for facts with which to fortify his faith, or for scientific data with which to combat myths that have no foundation except in blind faith. This little book will help them.

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THE MATTISON METHOD IN MORPHINISM. A Modern and Humane Treatment of the Morphin Disease. By J. B. Mattison, M.D., Medical Director Brooklyn Home for Neurotic Inebriates. New York, published for the author by E. B. Treat & Co., 1902. Price, one dollar.

This modest little volume is a multum in parvo on the subject treated. Dr. Mattison has had an extensive and remarkably successful experience in the trying field of practice to which he has devoted the best years of his life. He wastes no words on unproved theories or valueless speculations, but strikes straight at essentials, with the result that, emulating Puck in his earth-girdling feat, he clearly and concisely "girdles" his subject within the phenomenal space of forty pages.

The busy doctor who buys this little book will thank its author for sparing him the exasperating labor of searching through a volume ten times its size for the same facts in less available shape.

We commend it to all for whom the subject may have a special interest, for it has been called "the most notable advance in the therapeutics of this neurosis, and, as has been well said, 'is a boon to humanity, and an honor to American medicine.'"

GYNECOLOGY, OBSTETRICS, MENOPAUSE, being a revised and enlarged re-issue of three serial articles appearing in the *Medical Council*. Part I., The General Practitioner His Own Gynecologist; Part II., Common Sense in Obstetrics; Part III., The Change of Life in Women. By A. H. P. Leuf, M.D., Philadelphia. *The Medical Council,* 1902.

Dr. Leuf is a practical man, and he has in this volume acquitted himself of a very practical work. It is not over-bulky, yet covers a vast field, in which every general practitioner finds the bulk of his most trying work. Those who have had the privilege of reading the papers on which this volume is based will not need to be urged to secure them in permanent as well as much more perfect form.

Maternity. By Mrs. Emma F. A. Drake, M.D. Cloth, 50 cents, net. Vir Publishing Co., Philadelphia, Pa.

The author, herself a wife and mother, and practising physician of large experience, has furnished in this little volume a most valuable guide and handbook to the large class of women who need that varied and helpful information which allays anxiety when approaching maternity and which delivers from peril in that critical period.

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PROFESSOR SIMON NEWCOMB.

This is an age of popularized science, and in no work of recent years has the spirit of the time been more clearly reflected than in Professor Simon Newcomb's volume, "Astronomy for Everybody." (McClure, Phillips & Co.) Professor Newcomb has taken the oldest of sciences, and to all intents and purposes has made it new again. In his book the every-day facts of the moving universe, that old-school astronomers concealed behind a host of technical words and abstruse calculations, stand forth plainly in their real relations.

The author's premier position in the field of his chosen science guarantees the reliability of the work. While it is popular in presentation, nothing has been conceded of accuracy or completeness. It is quite comprehensive enough for a work of reference or instruction.

The volume grew out of articles contributed to *McClure's* a few years since, on the "Unsolved Problems of Astronomy," "Total Eclipses of the Sun," and similar subjects. The interest shown in those articles suggested an exposition of the main facts of astronomy in the same style.

The book includes sections on "The Celestial Motions," "Astronomical Instruments," "The Sun, Earth and Moon," "The Planets," "Comets," "Fixed Stars"—each divided into chapters, treating the subject in detail.

* *

THE PHYSICIAN MISSES IT.

"The trouble with you," the doctor said after examining the young man, "seems to be that something is the matter with your heart."

"With my heart?"

"Yes. To give it a name, it is angina pectoris."

"You'll have to guess again, doctor," said the young man. "That isn't her name at all."—*Chicago Tribune.*

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A "CLEAN" THERMOMETER.

Among other ingenious items the Norwich Pharmacal Co., of Norwich, N. Y., have put out a device by which each patient on the list of the physician who is fortunate enough to carry this instrument can be assured of a "clean" thermometer—the device consists of a strong glass tube, to hold an antiseptic fluid in which the thermometer is kept submerged when not in use—corrosive sublimate tablets accompany, to make a 1 to 4,000 solution.

This solution strikes us as having objections—why not use Dioxogen? It is equally or more effective and without objection.

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THE
DIETETIC AND HYGIENIC GAZETTE
A MONTHLY JOURNAL OF PHYSIOLOGICAL MEDICINE

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THE PREVENTION OF DISEASE.

By C. F. Ulrich, A.M., M.D.
Wheeling, W. Va.

FIRST PAPER.

The writer of this essay thinks an article written from personal observation, and founded on experience, is of much more value than a mere compilation of what has been written by others; even though it may not be so well written, nor contain such a variety of information. He will therefore refer to no authority; but will simply, in plain and intelligible language, that may be understood by the laymen as well as by the physician, recite what he has learned from practical experience, and give the result of a careful observation of the phenomena of nature and of the discoveries made in hygiene and sanitation as they have been impressed on his mind in a practice of a goodly number of years.

In the eighteenth and the beginning of the nineteenth century very little was known of hygiene, of sanitation, of the laws of health. In the large cities houses were crowded together, streets were narrow, sewers or other arrangements for getting rid of the accumulations of filth that are the inevitable results of crowding men and animals into a small space, were few and of slight efficacy. Windows and other arrangements for supplying dwellings with light and air were few and small, and except in hot weather were kept closed. The bedrooms were generally small and badly or not at all ventilated. The stables for horses, cows and other domestic animals were built in close proximity to the dwellings, sometimes even under the same roof. Fresh air was only enjoyed by the inhabitants when they went out of the city for business or for pleasure. In the night such air as the city afforded, none of the best, was carefully excluded, partly for fear of taking cold, and partly as a defense against thieves and robbers. Although the better class practised personal cleanliness, their dwellings were not so well kept. The walls, instead of being whitewashed, calcimined, painted or papered, were hung with tapestry which allowed accumulations of dust in the tapestry and behind it. There was no such attention paid to wastepipes, trapped sewers and sanitary plumbing as there is now in the better class of houses. The result of this was, when the inhabitants were attacked by disease, which was frequently caused by insanitary surroundings, they were treated by their physicians with the copious exhibition of drugs, many of them powerful and virulent poisons. As might have been expected, the action of these drugs, although sometimes successful in conquering the disease, was generally injurious to the system, leaving an unpleasant impression on the organism and causing a debilitating effect on the vital forces. This method of ignoring hygiene, neglecting external sanitation and cramming the suffering body with drugs went on for many years, and is even practised to a great extent in our time. Gradually it began to dawn upon the minds of thoughtful and observant physicians that many diseases might be prevented by observing certain rules of health. In many instances even the tendency to disease could be modified or eradicated, and much suffering prevented. Although in the medical fraternity there are some selfish men; nevertheless an immense majority of them are benevolent and willing to do all in their power to ameliorate the condition of their fellowmen. Many of them therefore set themselves to work to investigate Nature and to discover ways and means to minimize the ravages of disease. These investigations entered into by physicians with great loss of time and business, and frequently involving much expense, resulted in much good to mankind. A system of hygiene was developed and made public by which many diseases were prevented and others modified. By that means, in the course of time the more intelligent class of the laity were instructed in the laws of health, the application of which knowledge increased their powers of resistance to such an extent, that they and their families, became immune against the attacks of many diseases. The less educated masses, although not so easily instructed in hygiene, would, by imitation absorb much of the knowledge possessed by those to whom they looked up as examples; thus acquiring different habits and learning to take better care of themselves and their families. The object of this essay is to lay before those who may read it what the writer has learned by observation and experience, of hygiene, sanitation, and whatever besides he may know that will contribute to the prevention of disease, and to the diminution of the extensive, useless and injurious consumption of drugs. In order to avoid disease, it is necessary to possess some knowledge of its causes. The physician who studies how to treat disease and fails to investigate its cause, treating his patients empirically, looking only for symptoms, has failed in his duty, and is not thoroughly equipped for the noble profession of medicine. It becomes therefore the task of one proposing to write on the subject of the prevention of disease to lay before his readers such information as he may possess concerning the etiology of the diseases on the preventions of which he is trying to instruct them. We will first treat this subject in a general way, not specifying any particular disease. Heredity, although since the discovery of bacteriology, somewhat thrown into the background, undoubtedly plays a very important part in the causation of disease; if not the immediate cause. it is certainly in many cases the primary, and in many others the contributing cause. In the study of natural history, in the evolution of animals and man, we find heredity occupying a most important place. Now if heredity is almost the head and front of the development, the improvement and the progress toward perfection of the human race, it is reasonable to assume that the same is true of the retrograde movement or degeneracy that often takes place in the physical and psychical character of man. We know that parents of bright intellect are apt, in fact almost sure to propagate intellectual children, and vice versa. If any or both parents are afflicted with supersensitive nerves, this fault is in many instaces, transmitted to the offspring. The same is true of the different conditions of the brain, the heart, the lungs, the digestive apparatus, the muscular system, etc. Now, although persons thus born with hereditary defects or weaknesses, cannot be said to inherit any special disease, they certainly come into the world with a tendency in that direction and with small power of resistance; and are therefore more liable to succumb when attacked by such disease. Therefore it is important when dealing with the prevention of disease, which is of much more value than its cure, to know something of the family history, the condition of parents and grandparents, not to go farther back in the ancestral line. If any physical defect is found in any of these ancestors it should be taken into the account by the physician in deciding upon the best method of warding off the attack of any disease to which the client may be exposed. Right here it would be appropriate to remark that this can be done much more satisfactorily, when one physician has had charge of the family for a good many years, since he will then be more conversant with the peculiarities, idiosyncrasies and hereditary tendencies of the members of said family. By this knowledge he will often be able to foresee danger and ward it off. When we come to speak of special disease the importance of heredity will be more clearly illustrated. The character of the environment has much to do with the causation of disease, whether we dwell in a mountainous country, with its changes of elevation, its difference in the character of the atmosphere, its fogs, its sudden changes of temperature; or on a level plain, destitute of pure water, swept by violent winds, troubled with droughts, or in a marshy country affected by miasms, malarial fevers, with all their unhealthy accompaniments, in a cold climate with its wintry terrors, its dreadful storms, its accumulations of snow, compelling the inhabitants to shut themselves up in their dwellings, deprived of fresh air and outdoor exercise, or in a southern clime with its rank vegetation, its deadly insects, its torrid fevers, all these conditions must be taken into account in our efforts to prevent fell disease and postpone inevitable death. Surrounding circumstances, by which are meant, poverty with its deprivations, wealth with its excesses, poor, unsanitary dwellings with bad ventilation, poor light, innutritious or badly cooked food, insufficient and unclean clothing, ignorance or carelessness in regard to personal cleanliness, with innumerable little things that exercise a great influence on the general health and diminish the power of the body to resist the attacks of disease. Infection or indirect communication, such as the conveyance of the germs by way of the emunctories to the atmosphere, the drinking water, the food, thence taken into the body by way of the lungs or the alimentary canal, constitute another very prolific source of disease, in fact late researches in bacteriology have almost persuaded physicians that this is the universal and exclusive cause. However, it is best to proceed deliberately in these matters and not overreach ourselves by hasty conclusions. Direct contact, known as contagion, is the principal method of communicating and spreading a certain other class, mostly skin diseases. The entrance into the body, of a specific germ, termed bacillus, is generally recognized as the immediate cause of a great majority of diseases. This theory, under the title of Bacteriology is almost universally adopted by the medical profession. Although this science is as yet in its infancy, and much may be developed in the near future that may change our views in regard to it, the physician of the present day must shape his course according to the knowledge we now possess. He must neither cling to the exploded dogmata of a past epoch nor be guided by his guesses of what may be developed in the future. The hygienic physician and sanitarian must shape his course in accordance with the teaching of the present day. Bacteriology, whatever form it may take in the future, is of immense benefit to the medical profession and to the public, especially in the wonderful diagnostic power it confers upon the practitioner who studies it. But let not the thoughtful physician delude himself by imagining that our knowledge of that science is complete, for it is scarcely more than begun. Subsequent investigations will doubtless open up many a new vista to the inquiring mind of the thinker, which will add immensely to his method of diagnosis and his means of preventing disease. In order to succeed in the latter the physician must familiarize himself with all the conditions named above as being likely to cause disease and others that will be described later. He must not be tied down to any particular creed or sect in medicine; for such exist in medical science as well as in religion. He must be willing to gather knowledge from whatever source it may be derived. He must not neglect or pass by without notice the most trivial or insignificant circumstance that may throw light on his invesigations. One of the principal points to consider in the study of preventive medicine is the resisting power of the individual. This consists of the perfect action of all the organs, and the degree of departure from perfection in this respect measures the liability to contract disease, other things being equal . In this investigation heredity should receive due consideration. There are several elements worthy of mention which contribute much toward maintaining the perfection of the organism when this has been inherited, or to improve it when any part of the organism was imperfect at first or has become so by neglect or untoward circumstances in childhood. These elements are light and heat from the sun, pure air, charged abundantly with ozone, pure water, free from the germs of disease and from irritating substances whose presence is likely to set up inflamation in some locality, or obstruct the free passage of fluids, either in supplying nutriment or in carrying off waste material and worn out tissue. The sun is the source of all life on the planets of our solar system, we however, have only to do with our own planet, the earth. During winter, when the sun is low and casts its light and heat upon the earth a very short time each day, all vital forces are diminished, vegetation dies out, and many animals and human beings would suffer and even perish, were it not for the use of artificial heat and light, which are only latent rays of the sun stored away by the processes of nature. Watch the sprout of a potato in the cellar; how delicate and pale it is and how soon it perishes. But when it reaches a window and receives the direct rays of the sun, or the reflected and diffused light, how rapidly it acquires its natural color, quickens into life, and even puts forth leaves. So the human being that is born perfect and is permitted to enjoy the light and heat of the sun, being taken out while an infant to receive all the benefits derived from the orb of day, will grow rapidly, gain strength daily, if all the other conditions of life are complied with and he is subjected to no other drawback, will grow up to perfect manhood. But the child that is coddled, wrapped up, with the sunlight excluded, kept in a dark room, with the curtains drawn lest its eyes should be injured by too much light and its complexion become ruddy and coarse, will gradually grow pale and weak, delicate and sickly. The natural strength inherited from ancestors will be weakened and finally disappear, the individual becoming a confirmed invalid. The child born with a weak and defective constitution, if treated with a daily sunbath, when this is available, will have a good prospect to improve, grow up to be healthy and, in many instances, outstrip the one born healthy and cheated out of its good constitution by coddling and a foolish deprivation of solar vitality. The conclusion therefore is that children should be permitted to enjoy to the full extent the light and heat of the sun, subject only to certain restrictions and modifications on the principle that too much even of a good thing is not always advisable. Sunlight, when not in excess, is life, it is the vital principle, the source of all life. Absolute darkness is death, or it may be said that the little puny sunless life that does exist, can scarcely be called life. What folly then for people to deprive themselves of the beneficent rays of the life-giving sun. What a crime to subject their poor children, who cannot help themselves to such deprivation. The next element essential to life is air, without which no animal or vegetable life can exist. The air enters the lungs by the act of inspiration. Here it performs a double duty, separating from the venous blood the carbonic acid, the product of combustion and the waste caused by the wear and tear of the tissues, and removing them from the body by the act of expiration. It also imparts vitality to the organism by supplying the necessary oxygen which is essential to life. Oxygen causes combustion to keep up the bodily heat, imparts life and motion, by means of the ozone or electric principle, to the blood and other fluids, thus promoting assimilation, which advances the growth of the body and restores loss and waste. This shows the importance of a sufficient amount of atmospheric air, and the necessity of its greatest possible purity. If the lungs are in a condition to take in the required quantity of air, and if this air is pure, uncontaminated by unhealthy life destroying substances, is free from the germs of disease, and abundantly charged with ozone, then will the organism work satisfactorily and the body be able to throw off disease and inhibit premature decay. It may be said that we have no control over the quality and vitalizing character of the air. This to a certain extent is true, yet much may be done in the way of purifying the air. The offal from kitchens, stables and privies, which putrefy and pollute the atmosphere may be rendered innocuous by the establishment of crematories, reduction plants for converting the waste into fertilizers, where it will serve some useful purpose instead of mingling with the dust to be inhaled by the inhabitants whose lungs will be choked up and rendered unfit to take in a sufficient quantity of pure air, should they go out where it exists. At the very best the air in a large city is charged with much impurity which cannot be entirely remedied in the manner suggested. The inhabitants therefore must do the best they can under the circumstances by taking a so-called constitutional, especially early in the morning, in the way of walking or riding some distance outside the city limits. Our present system of suburban trolley lines makes this very easy for persons of limited means, while many possess horses and vehicles which enable them to go out into the country whenever they can spare the time, to inhale the fresh, bracing ozone-laden air which will revive them and give them strength to endure the unavoidable confinement of a city life. The more prosperous class of people have adopted the plan of building pleasant and commodious villas some distance from the city, going in every morning to their business and returning in the afternoon to their pleasant country homes. This for those who can afford it is very conducive to health, strength and happiness. The dwellings, both in city and country, should all be well ventilated, that fresh air, the best that is available, may be supplied in sufficient quantities, and that laden with the exhalations from the lungs of the inmates, and other impurities incident to family life may pass out.

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THE RELATION OF CHEMISTRY TO THE PUBLIC HEALTH.

A WORD ON PROF. WILEY'S PAPER IN JANUARY GAZETTE.

By Samuel S. Wallian, A.M., M.D.

It would be becoming in me to premise my brief paper by begging Dr. Wiley to absolve me in advance for any apparent flippancy which he may detect in any criticisms offered.

In acknowledging the honor conferred by the invitation of the President of the Hundred Year Club to add a word to the discussion of Prof. Wiley's interesting and instructive essay, I assume that I was expected to applaud his conclusions and synergize his cardinal objective, which I heartily do. At the same time, I realize that every scientific subject, along with its serious, has a casual and incidental side. And as I hold that life, on an average, is altogether too serious I decline to apologize for browsing around the fringes and incidental edges of the great field. There is another reason why I should not venture. It is a good rule in polemics as in war, that when the Giants have unsheathed, the Lilliputs should take to the woods.

Prof. Wiley is a veteran in this field, lives, moves and has his being in a laboratory, and the venturesome knight who would cross swords with one who speaks *ex cathedra,* and is ready to back up his utterances by the combined power of the Army and Navy, had better add a final codicil to his will and engage the ambulance corps or the crematory in advance.

I must, however, express my surprise that in the very outset of his paper Dr. Wiley, as a chemist, undertakes to appropriate the all-absorbing science of bacteriology. The chemist deals with dead and inorganic matter, not with living cells. The traditional chemist, to whose multinominal formulæ we have all been taught to bow, said in his pride: "Give me a crucible, some test tubes, fire, with a reasonable case of reagents, and I will divulge the secrets of Nature;" yet he shows himself to be impotent in the presence of the growing of a blade of grass, the blossoming of a modest hollyhock or the birth of a butterfly. He is still puzzled to tell the difference between the constituent elements of a bundle of rags and a bowl of sugar. He has never attempted to reckon with the life principle. He surreptitiously ignores the office of the germ, and loses his head when he finds himself mixed up with a miscellaneous army of cells, protamebæ, ions, neurons, and the like. Our champion of the evening has brushed aside all this traditional limitation, and boldly assumes that bacteriology is a branch of chemistry. In our Almæ Matri chemistry never encroached upon the grounds of biology. It was even modest when it approached the higher planes of its own legitimate province, the field of vital chemistry.

If we are to permit the modern chemist to roam at will through the realm of science, claiming everything in sight,—to use a slang phrase,—even claiming a world of forces and causes that eye hath not seen nor ear heard, then we must surrender to him, first and last, several of the collateral sciences—biology, botany, electricity, etc., etc.

I think we shall have to protest. Let chemistry stick to her own province of equations and equivalents, valences and symbolic assumptions. She has hieroglyphics enough in her algebraic and mythologic formulæ already, without trespassing on the domain of the more subtle and ethereal sciences.

All the chemical elements are "as dead as hay," so to speak. When it comes to the life principle, chemistry is simply dumbfounded and idiotic. She pulls cells to pieces and tells what they are made of, but knows absolutely nothing of their structure or function, and could not make a cell, to save herself from electrocution.

In a way, this may sound captious, but science is nothing if not accurate, and therefore science must take kindly to her own kind of criticism, which compels exactness and rational limitation.

Granted that chemistry has everything to do with combustion, with synthesis and analyses, the metals and the metalloids, it is out of its sphere when it undertakes to account for vital phenomena.

Prof. Wiley seems to have fully committed himself to the doctrine of materialism,—of a refined form, it is true, but still materialism.

From this naturally follows the exploded doctrine of spontaneous generation, to which none of us now acknowledges allegiance.

If the chemist is to invade the realm of biology, claim the paternity of vibrios, saprophytes and the rest of the germ family, the result will be a total surrender of the field of science.

It is scientific presumption and heterodoxy of the boldest kind.

We shall next expect to hear that the chemist has appropriated Christian Science, Mind Healing, hypnotism, telepathy and the business side of the spiritual seance. He is in danger of becoming so inflated with his triumphs that he will strut the earth and sing, with the lamented senator from Kansas: "Fame, love and fortune on my footsteps wait."

As to the chemist's achievements in the line of ventilation, nine hundred and ninety-nine out of every thousand people haven't the slightest idea whether it is CO2 or CO 14 they are breathing.

A few have the sense to get out of doors, shove down a sash, or break a window, rather than try to live in breath-poisoned air; but most of us go on trying to inure ourselves to CO2, animal exhalations and nicotin. We breathe our neighbor's breath and send it back to him with compound interest, in the form of disgusting tobacco smoke.

What Dr. Wiley says about ventilation needs to be pounded into the architects, but the architects will go on with their sanitary monstrosities until the people become more intelligent and demand an application of some approach toward hygienic rules in the construction of dwellings.

When Professor Wiley refers to alcohol as a form of food he no doubt has in mind the experiments of Professor Atwater at the Storrs Experiment Station, which is merely another branch of the Department over which Professor Wiley himself presides. It is only natural that he should at least tacitly and nominally endorse any scientific conclusions arrived at by his subordinates at that station. We outsiders respectfully dissent. We admit that alcohol is composed of carbon, hydrogen and oxygen, which are constituents of all food products; we admit that the human digestive organs, when goaded by dire necessity, may be able to dissociate these elements to a limited extent and to utilize them in their nutritive processes. They manage to do the same, in a limited and lame way, with bits of old leather or dried sawdust; but this does not prove that either of these substances deserves to be classed with legitimate foods. The physiologic (?) action of alcohol in the human system, as proved by a century of accumulated experience and test, is to precipitate the normal gastric secretions, coagulate albumin and albuminous tissues, and produce chronic inflammation of mucous membranes. The most palpable results of these actions consist in a gradual contraction of the stomach, a shriveling and hardening of the liver (nutmeg or hobnailed liver), and a pregressive atheroma of the arteries, so that they are rendered more and more liable to sudden rupture, (apoplexy and paralyses), and overworking the kidneys, until they are at last compelled to succumb, (desquamative nephritis or Bright's disease).

We can all say amen to his remarks about pure water, but so many of us never drink water!—and those who do indulge in this vulgar liquid prefer to have fashionable impurities added, earthy salts, sulphur and the various "minerals",—when they do not naturally exist.

From impure water we get most of our typhoid, dysentery and some other infectious diseases, but the chemist has never succeeded in detecting the deadly germs of these maladies, or in satisfactory purifying water by means of his art. We had to be told how to do this by the bacteriologist, and it is no longer necessary to imbibe any infection from the hydrant. Distilling is now quite feasible for every family; effective filters are inexpensive,—though most of those offered are fakes; and in the absence of these methods, boiling affords a cheap form of comparative safety.

Turning to the subject of food adulteration, which is the field where the chemist should always be most at home, who shall speak a word for the under-dog in the fight? The great army of adulterators are, however, "under-dogs" only on paper. They are yet the upper-dogs in all the markets, and this in spite of national statutes and state laws.

They feed us oleomargarine, and we are willing to swear it is butter. Most of our olive oil is made from peanuts and cotton seed. Every baking powder in the market is bogus, half the honey is mixed with glucose, and practically all the wines, whiskeys and brandies are fabricated, or doctored. The plain truth is, we don't like them and will not buy them unless they are "doctored,"—only we don't want to know just how it is done!

The diet reformers are all the while preaching that we should take a hint from Nature. But let us see how the account stands with Nature. The pessimist insists that every dish she sets before her sometimes starving and sometimes pampered children is either infested with disease germs, adulterated with husks and refuse, or already undergoing degenerative change. He proves that the air into which, as kicking, squalling infants we are all involuntarily born, is at once an undulating ocean, swarming with aeronautic microbes, each eagerly watching for an opportunity to swoop down upon unwitting wretches whose rifle-pits of defence have been obliterated by the débris of disease and bad living; in addition to which this atmosphere is tainted with carbon dioxid, ammonia, infectious dust and various deleterious products of combustion. Following the same argument, he declares that the water provided by Nature is saturated with the salts of lime and other minerals, that harden our hearts and arteries, and stiffen our joints, and that every organism she brings forth in sorrow and anguish immediately sets about further contaminating both the air and water. The grains she grows are mostly stricken with smut, so that we all pay the baker for our daily homeopathic triturations and "high potencies" of *secale cornutum* and *ustilago maidis.* The fruits are no better. Apples are punctured by worms, oranges are covered with scale, and a recent German biologic inquisitor has announced that the skins of cherries harbor twelve millions of bacteria to each half pound of fruit. Currants come next with eleven millions, while innocent grapes boast of at least eight millions!

The milk we steal from other calves makes up for its lack of cream with some uncounted billions of germs to the pint; and the flesh we eat,—provided we do not belong with the lonesome few who eschew the fleshpots of Egypt—and Kansas City—is permeated with trichinæ, tapeworms and tuberculosis,—while the word scrofula comes from the Latin, *scrofus,* a sow.

It follows that if the professional adulterator takes his business hint from Nature he has ample warrant for all his trickery and mixing. This adulterating business isn't new. The ancients berated it, and Tennyson entered his poetic protest against it half a century back, when he wrote:

"Peace in her vineyard—yes! but a company forges the wine.
And the vitriol madness flushes up in the ruffian's head,
Till the filthy by-lane rings to the yell of the trampled wife,
While chalk and alum and plaster are sold to the poor for bread,
And the spirit of murder works in the very means of life.

And the spirit of murder works in the villainous center-bits
Grind on the wakeful ear in the hush of the moonless nights,
While another is cheating the sick of a few last gasps, as he sits
To pestle a poisoned poison behind his crimson lights."

Of course we must urge our chemists to go on hunting down the adulterators and warning the community against their bogus wares; against lead, and tin, and the albuminates in our canned goods; but we must not succumb to hopeless despair lest the race is on the eve of annihilation, through the machinations of a microbe monopoly, or a tin can Trust. It may be true that, "Each man walks with his head in a cloud of poisonous flies," but we must not forget that Nature also provides us weapons of defence, a veritable standing army of immunity and self-protection. There's hardly a limit to the degree of tolerance she can cultivate. Your opium, arsenic or hasheesh habitué acquires a tolerance that is incredible, daily swallowing doses, with impunity, that would prove swiftly fatal to ordinary mortals.

So of the tipplers and tobacco fiends. Although they topple and go down suddenly, at last, most of them acquire a temporary immunity to the certain inroads of alcohol and nicotinic acid.

Most important of all, the blood of every organized being is normally fortified with antagonistic germs—the leucocytes and phagocytes which take care of most of the toxins and attacking germs, either by excluding, repelling or devouring them.

Besides, not all the germs are inimical to health. Some of them—in fact a great majority of them are actually indispensable to the process of digestion and assimilation. It has recently been shown that absolutely sterilized food ingested by a sterilized stomach does not perfectly digest and nourish. For example, chicks fed on chemically perfect but germ-free food, flourish only for a few days, and then decline and die of inanition. It has also been proved that sterilized seeds, planted in sterile soil will not germinate. Germs are thus seen to be the beginning of all life, and no organized being can long functionate without their constant presence and aid.

The chief resource, then, of human beings, who would avoid disease and stave off the inevitable undertaker, is to cultivate this inherent faculty of immunity and self-protection. There is no excuse for tampering with seductive alcohol, insidious arsenic, or any of the rest of the delusive family. Pity there are not more of us with sufficient backbone to resist all the physiologic devils, and seek our inspiration in something better than alcohol and dirty nicotine! We can keep the salts of lime out of our blood by the use of water-stills, and by avoiding the fad of "mineral waters," which are really good only as they are free from every kind of "mineral" taint. There are plenty of wholesome and nutritious varieties of food from which to select a diet that will avoid the chemical pitfalls that so thickly beset us on all sides.

Of course there is an occasional case of poisoning, but the Coroner usually demonstrates that it is one of either rank carelessness or unmistakable design. Alarmists of a certain kind frequently do more harm, by creating needless panic, than some of the sources of poison they so fiercely denounce. In short, the chemistry of common life is so largely at our command that if we use a reasonable discretion, avoiding all avoidable sources of harm and contamination, we may all,

"So live that when the summons comes to
join the innumerable
Caravan that moves to the pale realms of
shade, where each shall
Take his chamber in the silent halls of death,
we go not
Like the quarry slave at night, scourged to
his vermin-haunted dungeon,
But sustained by an unfaltering trust, (in
antitoxin and antiseptics), wrapped in
an alum-saturated sheet,
And rocked in the cradle of the rose-red
crematory, to slow music,
Quietly glide to nothingness—except that
little handful of calcined fertilizer, left
For my lady's flower-garden!—unvexed by
horrid dreams of
Poisoned bread, and beer, and meat and
milk.

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AUTO-INTOXICATION, WITH SOME SUGGESTIONS AS TO ITS TREATMENT.

By John J. McNulty, M.D.,
New York.

It is only within the past decade that the profession has begun to fully realize the prevalency and grave danger of this condition, for it is hardly proper to individualize it as a distinct disease, inasmuch as it is a general result of a complexity of causes and is not accompanied by any observed uniformity of manifestation. Its symptomatology varies with each individual case and the pathologic changes that occur are not marked or have never been accurately defined. Those which are apparent are an accumulation of organic poisons in the circulating medium and tissues,—the results of morphologic transformations,—the presence of supernormal ferments, gradual cessation of motility in cells or their appendages, cell agglutination, precipitation and coagulation.

Against these progressive changes all the antagonistic resources of the system are constantly arrayed, including antenzyms, cytotoxins, agglutinins, coagulins, etc., etc. But, the causes persisting, in time these resistive forces are overcome and become incompetent. As yet no experimenter has succeeded in evolving an anti principle that of itself and unaided can neutralize the complexity of toxins present in any well marked case.

The prophylaxis available against this form of infection is self-suggestive,—avoidance of the causes enumerated and a careful observance of the dietetic and hygienic laws having a direct bearing.

Among the numerous direct and indirect causes climatic environment may be mentioned, but while it may be occasionally found to be fundamental it is generally inconsequential.

The more prominent of assignable causes include sedentarism, over-ingestion of food, especially of nitrogenous foods, suboxidation and subelimination, the under-ingestion of fluids, and lastly, overwork and overstrain, the latter often being the primary and principal cause.

The manifestations vary from simple malaise to profound uremia, cholestremia, or some other form of toxemia equally serious. The same condition obtains in the victims of drug addiction, and is the first to be combated in the modern treatment of these unfortunate sufferers. Among the frequently unsuspected symptoms are recurring cephalalgia, mental hebetude, myalgia, various neuralgias and irregularly recurring sensations that closely simulate rheumatic pains. Overwork or strain, as a frequent and very prolific cause, may be quite other than mere physical overwork. It is much more likely to be mental strain or excessive nerve tension.

The malady or condition is more serious than is generally realized, a large number of deaths annually occurring as its direct or indirect result, although many of them are attributed to other sources, frequently being classed as "renal insufficiency," or "cardiac failure." To any physician who has had his attention called to this ailment the diagnosis is not a serious stumbling block and need not be further discussed in this connection.

The rational treatment should begin with a change of environment that shall compass a complete reversal and revision of the patient's objectivity, as far as that is feasible.

Elimination must be promoted by all available means, one of the readiest and at the same time most effectual being by the free exhibition of the salines, especially of the sulphates. The latter increase the functional activity of the liver and free the alimentary canal, thus counteracting the effects of the existing cholestremia.

Regulation of the diet, especially the avoidance of any excess of nitrogenous food is essential, temporary under-ingestion being of marked benefit. Alcoholic beverages of every kind should be interdicted, and this abstention may be made to include tea and coffee with advantage.

The free and regular use of noncarbonated waters, the best class of natural spring waters probably being most eligible, is a measure at once prophylactic and curative. Its importance can hardly be overestimated, yet it is very generally neglected. It acts as a diluent and detersive, liquefies coagula and inspissated fluids and flushes the emunctories. The imbibition is to be practised before, after and between meals, instead of with the food, otherwise it may seriously interfere with the digestive function, which latter is so essential to the success of any form of treatment.

But the removal of the toxins and establishment of normal hygienic conditions and habits does not by any means restore the patient to perfect health. There remains the systemic depression, the lowered vital tone, the psychic and physiologic perturbation which follows as the inevitable reaction from over-tension, whether of either the nervous or muscular systems, or of both, since oftener than otherwise both systems are coincidentally involved. To overcome this perturbation and depression requires more skill and therapeutic finesse than is ordinarily involved in the treatment of many of the more pronounced maladies, not even excepting the infectious fevers. If the vital exhaustion and mental depression be not speedily and pleasantly relieved the patient is more than likely to relapse into former habits, especially that of stimulo-narcotics. Sedation is peremptorily demanded, but how to produce it without involving corresponding reaction, and just how far to carry it without overdoing it are points that require the exercise of quick perception and trained judgment. The bromides suggest themselves and are unquestionably of the greatest service; but the most careful discrimination must be exercised in prescribing them. There is a wide difference in the therapeutic value of the different bromin salts when it comes to treating the hypersensitive condition in which these patients are left after the active symptoms of the original infection or intoxication have been wholly removed.

In that disturbance of the nervous system which remains after the elimination of toxic influences, in my experience, the most effective, often the most surprisingly effective, therapeutical agent is Arsenauro. This compound of gold and arsenic sedates (rests) the perturbed nervous mechanism and allows of a return to the normal—a condition the organism is always endeavoring to reestablish. Most sedatives sedate at the expense of nutrition. Arsenauro sedates (quiets) and at the same time promotes the process of repair—improves nutrition.

The treatment as thus outlined is parallel with the most advanced methods now in vogue with specialists in the treatment of drug and narcotic habitues.

To recapiulate, the treatment of these distressing cases should include:

Readjustment of the patient's environment—physical, mental and psychologic.

Elimination of the causative toxins, preferably by the non-irritating salines, aided by the Turkish bath.

Copious water drinking, not too near the meal hours.

Judiciously adjusted sedation.

364 West 35th Street.

THE TREATMENT OF TYPHOID FEVER.*

By H. A. Hare, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia; physician to the Jefferson Hospital.

When Dr. Cook asked me some weeks ago to take part in this discussion I hesitated to accept, because it seemed to me that the subject of the treatment of typhoid fever had been so well threshed out in various meetings in the last few years that nothing new could be added to the theme, and that the reiteration of well known facts would be wearisome. The fact that this section of the Academy of Medicine had chosen this subject for debate proved, however, to me that it was worthy of our consideration, and so I came here to-night not to herald any novel plan of treatment, nor to advance any unusual theories, but simply to present certain views which will perhaps interest the members sufficiently to provoke discussion or criticism. After all, it is by such criticisms that we all of us gain definite and reliable views of the plans we should pursue.

In the brief time at my disposal I shall not speak of the various prophylactic measures, extending from sanitation to the use of anti-typhoid inoculations, but of actual therapy.

If there is one malady which better illustrates the wisdom of Dr. Jacobi's favorite axiom, *nil nocere,* I do not know of it, and if there is one in which the physician more commonly pours "drugs of which he knows little into a body of which he knows less,"

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* Part of a symposium on Typhoid Fever at the New York Academy of Medicine, Section on Medicine, October, 1902.

I should be interested to hear of it. What between the desire to be of active service to the patient, the prolonged character of the malady, the urging of the friends, and the multiplicity of the symptoms or complications, it is indeed a well trained physician who can resist constant drugging. Yet this is the curse of all therapeutic advance to-day, and physicians seem to ignore the fact that so-called remedies can be, if mistakenly used, capable of great harm. Even if they are not directly harmful, they may so befog the ordinary, natural manifestations of disease that erroneous impressions as to the gravity of the symptoms are produced, and so additional drugs are given to disperse signs that would disappear if left alone or if the drugs producing them were stopped. Would it not be a good motto if in every case of typhoid fever the bed was labeled, "Let the patient get well?"

But if these primary remarks seem to indicate that I am a nihilist as to treatment in typhoid fever, let me hasten to contradict such a view. On the contrary, I am firmly convinced that there are are few diseases in which the skilful use of remedies is so needful for the relief of annoying symptoms, the removal of dangerous complications, and the maintenance of normal functions.

One of the most important functions in the disease we are discussing is undoubtedly that of the kidneys, upon which falls the duty of eliminating the toxins of the disease itself, the toxins of other infecting organisms, and the waste products of the fever. Yet it may be truthfully stated that even the quantity of urine excreted is often not noted, it is rarely tested for evidences of nephritis, and it is still more rarely examined to determine the excreting power of the kidneys by estimating the amount of urea, which is as important a function in typhoid fever as in pregnancy. For the maintenance of this function, pure water is to be insisted upon, given very frequently in small quantities, and if need be aided by mild refrigerant diuretics.

This subject of renal excretion is closely related to another about which great difference of opinion exists, namely, intestinal antisepsis. I say closely related, because nearly all the chemical intestinal antiseptics are largely eliminated by the kidneys, upon which is thrown this increased labor, or perhaps irritation. It seems to me that this is the chief argument against the use of these preparations as a class, for here they may do harm. The argument that intestinal antiseptics cannot act on the general infection is a negative argument in the sense that while they may be of little use they do not necessarily cause harm. Personally, I am inclined to believe that the use of intestinal antisepsis is neither to be largely relied upon nor ignored. If the drug used for this purpose is surely harmless, if its use seems to diminish tympanites and fecal fetor, it serves a useful purpose as an aid, but let no one think that it aids in any way in aborting or curing the infection *per se.* As a matter of fact, I know of no intestinal antiseptic commonly employed that is not more or less directly eliminated by the kidneys, nor of any one the use of which is really based upon studies of the sterility of the feces after its employment. Recently a new substance called acetozone has been produced, which has been found to render the stools entirely sterile. If this is confirmed and no renal irritation follows its prolonged use, it will be a valuable remedy, not as a cure but as a modifier of some of the annoying symptoms and possible complications of the malady. That intestinal antisepsis is a curative agent very few of its most ardent advocates will claim.

All physicians, like the rest of humanity, are victims of enthusiasm, and this is only tempered by experience. So when some years ago the view became general that fever was a dreadful thing in itself, an immense amount of medicine capable of reducing fever was prescribed with little regard to the collateral effects of such measures. Doubtless much damage was done, and more still is being done by those who hold fast to antipyretics and simultaneously employ the cold bath. We now know that antipyretic drugs should rarely if ever be used in enteric fever, that they in no way benefit the patient except in an unimportant and temporary manner, and that as a rule the patient who does not receive them is in the end better off than he who gets them. But if it be true that he who receives them is not benefited, I repeat that he who receives them and has the cold bath in addition is truly "between the devil and the deep sea," for the influence of the antipyretic drug is such as to utterly unfit it for use with the cold bath. It seems hardly necessary to point out that in the use of cold in typhoid fever the least important function of this method of treatment is the reduction of the fever. The lowering of temperature is simply a gauge which controls our use of the method, and the dominant influences are those most important things, namely, the equalization of the capillary circulation, the redistribution of stagnant blood, the counteracting of the depressing influences of poisons on the nervous system, the increased elimination of these poisons, and finally their rapid destruction by the increased vital activities of the body. This means their oxidation and the perfect oxidation of the other tissues or foodstuffs which in the presence of profound toxemia are badly oxidized, and become poisonous products instead of properly prepared physiological educts. All of these things the antipyretic coal-tar drugs prevent. They diminish oxidation, they interfere with capilary circulation, they decrease the elimination of toxins, they prevent the blood in all probability from manufacturing antitoxins or protective bodies.* In other words, they prevent that *sine qua non* of the cold bath in health and disease, namely, reaction. If any one doubts this, let him take a dose of one of the antipyretic drugs and then have a surf bath, and instead of being refreshed he will be chilly and wretched.

Nearly five years ago I had the temerity to read a paper before the College of Physicians of Philadelphia, in which I attacked the indiscriminate use of the cold plunge bath, or that of Brand, in all cases of typhoid fever. I believed then, and I believe now, that it is a therapeutic maxim that no therapeutic measure can be good for all cases, and that it must be modified as the necessities of each case arise. There is not time to traverse the statistics then prepared, nor to repeat the conclusions which I drew from them. The point of impact is that as long as we produce reaction, oxidation, elimination, and finally equalization of the circulation by the use of cold, it matters little how that cold is used. I also stated in the aricle quoted that in my belief the time would come when we would look back to the promiscuous plunging of all typhoid cases as we look back to promiscuous venesection; that is, that it is useful in some cases, but not necessary or wise in all. That my prophecy has come true is proved by the fact that the plunge bath is now not used universally by many men who at first followed Brand absolutely, and it is only fair to Brand to state that many of his followers ignored the rules he laid down to prevent the indiscriminate use of the bath. As a matter of fact the cold plunge does not best accomplish what we seek in all these cases. It requires a good deal of movement of the patient at a time when ulceration of the bowel is well advanced, and hemorrhage and perforation may occur, and prevents us from paying particular attention to those great heat retainers of the body, the dorsal muscles, since these parts cannot be rubbed when the patient is immersed, nor can they be cleansed. It is difficult to watch the patient's temperature when he is in a tub, and the process often produces an amount of shivering which is distressing. In the majority of cases I find cold rubbing far better, but instead of this cold rub being less difficult to give properly, it is more difficult, but only because the nurse or nurses do not know how to sponge or apply active superficial friction. Whenever I have been told that cold rubbings will not cause reaction in cases in which they are properly ordered, I have found the fault to be in the technique of

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*See author's address on the "Rôle of Fever in Disease." —*Therapeutic Gazette*, 1895.

their use and have discovered on using the method myself, or on getting one of my own trained nurses, that this was the trouble.

Not only do I believe that in the modified cold bath we have the best measure of benefiting our patients, but that very extraordinary modifications of it may be advisable, extending from actual hot water to the direct application of ice to the patient; for if it be true that the chief effect of cold bathing is the production of reaction, then it is conceivable that conditions might exist in which a reaction produced by the use of heat would be better than one caused by cold. That this is true was emphasized some time since by F. E. Hare and Hirschfeld, Australian clinicians, who claimed excellent results from the use of warm water, being forced to use this because ice was not obtainable, and the atmospheric conditions were so warm that even cold water could not be had. Their experience was in the Brisbane Hospital, whence F. E. Hare wrote his monograph advocating the cold bath. In 1897 with the cold bath the mortality in 266 cases was 7.2 per cent; in 1898, cold and some warm baths were used, and the mortality was 7.5 per cent; whereas in 1899, when warm baths of 80° to 90° F. were used, the mortality was 3.4 per cent. The conclusions of Hirschfeld after many thousand warm baths are as follows:

1. The average fall of temperature obtained through these baths is 1.5° to 2° F.

2. In a large number of cases a bath of 85° will bring about a greater reduction than one of 80° of the same duration.

3. In a small number of patients (principally the aged, weak, and children) a bath of 90° is more effectual than one of 85°.

4. There are a few cases that offer considerable resistance to refrigeration through tepid baths.

What is the reason of the apparently paradoxical fact that a tepid bath will bring about as great a reduction of temperature as a cooler one? To clear up this point Hirschfeld took the temperature in several cases in which there was a resistance to refrigeration every ten minutes during and after the bath, and to avoid error, simultaneously in mouth and arm. He says:

1. The first reason which may be assigned is that the patient does not part with his heat so readily in the cold as in the tepid bath, because the initial contraction of the blood-vessels of the skin in the cold bath allows less blood to pass through the skin, and consequently less heat is dissipated. This explains why in a cold bath the temperature of the internal organs actually rises in the first few minutes, the heat being stored up.

2. The colder the water the more frequently shivering follows the bath. Shivering raises the temperature of the body rapidly: (*a*) through lessening the circulation of the skin; (*b*) through the involuntary action of the muscles, in consequence of which less heat is being produced.

3. The temperature of the body is the result of two factors: (*a*) the production and (*b*) the dissipation of heat. Now, while admitting that the dissipation of heat will be greater—nay, let us say considerably greater—in the cold bath (except, of course, in the first few minutes), it is an indubitable fact that the cold bath stimulates the production of heat much more than a warmer bath.

Hirschfeld points out that by the use of these baths the patient is not alarmed, and his heart is not subjected to great changes in arterial resistance. Again, such baths can be used in children, in the aged, in advanced stages of the disease, when reaction to the cold bath is not possible.

I have brought forward these facts because it seems to me that they have not received the attention they deserve, and because they indicate that the routine use of water in one way and at one temperature is irrational. In other words, let us value the bath in typhoid fever at its great value, but let us modify it sensibly in each case.

A remedy almost forgotten in the advanced stages of typhoid fever, particularly in those cases where the patient has not had the bath treatment early in the malady, is turpentine. I have seen this drug produce excellent effects when the tongue is dry and coated and the belly tympanitic, and I regard it as of great value in those cases first described as needing it by George B. Wood years ago.

There is another factor in typhoid fever not yet touched upon in this paper, namely, what shall we do for the heart when it seems to be failing? In the first place, let us be sure that it is failing before we decide what drug we will give. It is my custom to tell students to feel their own pulses after feeling the patient's pulse, and this usually leads to the discovery that the pulse of the patient under the influence of the high temperature is stronger than that of the student. In our fear that the heart is failing we probably often stimulate too early.

Aside from the favorable effect of the bath, I believe that most practitioners will agree that alcohol is the stimulant *par excellence* in the disease, and that cold applied over the precordium is a valuable means of slowing a too rapid pulse. Of the value of digitalis in this state I have strong doubts except in unusual cases.

Several years ago I called attention to the fact that while strychnin is a most valuable drug in many conditions, it is on the other hand capable of doing harm if abused. I expressed a belief at that time that it is given too commonly as a true stimulant, rather than as a "whip" to an exhausted nervous system with the object of rallying the patient's strength until a dangerous crisis may be passed. I also pointed out that the continued use of strychnin in diseases like typhoid fever or pneumonia frequently produces not only an excess of nervous irritation, an irregular temperature, and a rapid pulse, but also is capable of rendering the patient unduly irritable, and where exhaustion is extreme it may actually cause a certain amount of delirium. It has always seemed to me that strychnin is essentially an irritant stimulant which should be applied in a crisis, only a few doses at the most being given, and that its continued employment is like applying a whip constantly to a tired horse, with the result that in the end less energy is developed.

Of course, these remarks do not hold true concerning small doses of strychnin which are given during convalescence, for the purpose of getting the effect of a bitter tonic and a slight nervous stimulant, but increasing experience convinces me that the physician who relies entirely upon strychnin as a circulatory stimulant in the course of fevers is making a therapeutic mistake.

As to diet, let me add that in most cases the typhoid patient needs not milk alone, but easily digested starchy foods, or foods of this type, helped in the digestive process by taka distase or pancreatin. I also allow one to two eggs a day, giving them very soft-boiled, and I believe by the use of this diet the patient is better able to combat the typhoid infection, and the so-called "terminal infections" which so often aid in producing death. His convalescence is more prompt, and his secondary nervous symptoms are lessened.

There are few conditions met with by the practitioner so far beyond his ability to be of any real assistance as intestinal hemorrhage. The remedies recommended are very numerous, but I have yet to hear of or try one which really appealed to me as part of rational therapy unless it be calcium chloride or gelatin, and neither of these has given me results that are certainly in the relation of cause and effect. The application of the ice-bag to the belly wall, so often used by all of us, probably has little if any effect upon a hemorrhage from an intestinal vessel, and often deprives the patient, already shocked and anemic, of vital heat. When the hemorrhage is really active no drug which acts as a styptic can get to the bleeding spot soon enough to effect a good result, and where the hemorrhage ceases after a remedy is used it does so more by the efforts of nature than by any effort of the physician.

At a recent meeting of the Philadelphia County Medical Society, in speaking of this subject, I said that while I did not wish to seem to be a therapeutic nihilist I thought in the majority of circumstances it was rather an abuse of therapeutics than otherwise to attempt to control hemorrhage by the administration of drugs. I do not see why a bleeding vessel in the intestine should be regarded differently from a bleeding vessel in a man's leg. No one would think of applying a turpentine stupe or of giving turpentine internally or adrenal gland or similar styptics by the mouth to control hemorrhage from a branch of the anterior tibal artery. I fail to see how any of these remedies, even if possessed of hemostatic properties when brought into contact with the bleeding spot, can reach that spot and be of use when they have to pass through many feet of stomach and intestine. Saline effusions can be employed with advantage with certain limitations. The only remedy which seems possessed of any advantage is Monsell's salt, given in very hard pill encased in two or three layers of capsule with the hope that it might get down into the small intestine in sufficiently unchanged form to exercise an astringent influence, although of this I am exceedingly doubtful.

Finally, is it not wise for us to sum up our treatment of typhoid fever by these words, which after all apply to the treatment of all illnesses? Woe to him that uses drugs or measures when they are not needed, and woe to him that does not use them properly when they are indicated.

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DEADLY ILLUMINATING-GAS.

It is asserted by a writer in an American medical weekly that cases of poisoning by illuminating-gas are on the increase, and he attributes this to the use of the so-called water-gas, which contains a high percentage of the deadly gas called carbon monoxid. In Massachusetts, a law so limiting the proportion of this substance as practically to exclude water-gas from use, was repealed about thirteen years ago. Since that time, there have been four hundred and fifty-nine deaths from inhalation of gas, while in a period of equal length preceding the repeal of the law there were only eight deaths from this cause. Carbon monoxid is not only fatal in large quantities, but it produces a general condition of ill-health in very slight proportions, and the writer believes that many puzzling cases of decline in physical vigor are to be attributed to almost inappreciable gas-leaks.—*Success.*

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HOW TO DRINK WATER.

A beginning of kidney trouble lies in the fact that people, especially women, do not drink enough water. They pour down tumblerfuls of ice water as an accompaniment to a meal, but that is worse than no water, the chill preventing digestion, and indigestion being an indirect promoter of kidney disease. A tumbler of water sipped in the morning immediately on rising, another at night, are recommended by physicians. Try to drink as little water as possible with meals, but take a glassful half an hour to an hour before eating. This rule persisted in day after day, month after month, the complexion will improve, and the general health likewise. Water drunk with meals should be sipped, as well as taken sparingly.—*Good Housekeeping.*

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EASY TO TRY.

The *Family Doctor,* a London publication, reports the following case: A young girl for four days without cessation from singultus, the attack being, due, apparently, to some gastric disorder. When she put out her tongue for a few seconds it was found the hiccough ceased. She was then ordered to stick out this member at regular intervals for a few minutes, at the termination of which only a few slight spasms followed. She was then ordered to repeat, when the singultus ceased altogether, and did not again return. It, therefore, would seem to be proper to try continuous or rhythmic traction of the tongue in these cases.

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

AMERICAN JAM, ETC., IN ENGLAND.

BY JAMES BOYLE, U. S. CONSUL, LIVERPOOL.

REPORTS from this consulate have several times during the past three or four years drawn attention to the great opening in England for American fruits, preserves, jams, pickles, condiments and other table delicacies. The English people are the largest consumers of jam in the world. It is probably the fact that jam and not beef is now the national dish of the Britisher—or, at any rate, jam (including marmalade) runs bacon a close second. As the United States is now supplying a large proportion of the beef and bacon consumed in England, she can also, by proper methods, capture a great share of the trade in jam, preserves, etc., in this country. In order to secure, and particularly to hold the trade, however, it should always be kept in mind that the English are very discriminating buyers. They want a good article, and are prepared to pay a good price; and, as a rule, they are indifferent as to the place of origin. It is well known that nowhere in the United States can better American beef and bacon be bought than can be bought in England, and many American visitors declare that better American beef can be had in London and Liverpool than can generally be obtained in New York or Chicago. However this may be, it is a fact that shippers of American beef to this market understand that they must send over the very best in order to compete with the home and colonial product.

But to return to jams, preserves, etc. The English trade in these lines is increasing all the time. A great revolution is going on in the English table, more especially among the middle and working classes. What were a few years ago expensive delicacies, found only on the tables of the well-to-do, are now to a great extent articles of daily consumption by the masses. Except so far as the very poor are concerned, it may be said that bacon (generally with eggs) and jam or marmalade are on every English breakfast table; and an almost universal "sweet" (the English for "dessert") at lunch and dinner is a "compote," stew or tart, of which the chief ingredient is preserved fruit. In this connection, the following article from the *London Daily Telegraph* of January 12, 1901, is of interest and contains a number of suggestions valuable to American shippers in the lines indicated:

"JAM BRICKS—CONFECTIONERY ENTERPRISE IN AMERICA.

"Commercial journals in the United States are just now directing much attention to the vast development that is taking place in California and elsewhere in the manipulation of fruit pulps and jam, and it seems that something like a revolution in the enormous industry is by no means an impossibility in the near future. Something of the same kind has been foreshadowed in this country, and observant visitors to the great exhibitions of grocery and confectionery at the Agricultural Hall last autumn did not fail to note the prominence assigned to partially boiled-down fruits, with a view to their ultimate conversion into preserves, seeing in the idea a possible valuable resource to the British market gardener, now so often handicapped by glutted markets and low prices. The aim, however, of the American experts is to go yet farther and to work their pulps with the due proportion of sugar into practically jam bricks. One need not be very old to remember how housekeepers of the recent past used to pride themselves upon the stiffness and firmness of their damson or cherry 'cheeses,' which could be stamped out in fanciful forms with a pastry cutter, and were not even sticky to the touch. Those were due to careful boiling to exactly the right point, after processes of putting the fruit through fine sieves and bringing the sugar to candy. This, upon a wholesale scale, is what American jam boilers want to accomplish, and many experiments in that direction are now being carried out.

"Indeed, so far has it gone that Messrs. Henderson & Simpson, of Thames street, who are wholesale dealers in American produce, a few months ago submitted to the War Office a number of specimens of these 'jam bricks' for the use of the troops in South Africa, pointing out the valuable saving that would be effected in freight and transport could oiled tissue paper take the place of the present tins, glass jars or crockery pots. The samples received the fullest consideration, as the condensed soups supplied through the same house had won special commendation from Earl Roberts, but were not adopted, which, it may be said, did not cause any surprise to those concerned, who are themselves the first to admit that there are still obstacles to be overcome before a perfect solidified preserve is available. That these will be surmounted within the next few months no one has the slightest doubt, and meantime the samples in this country are attracting much interest throughout the grocery trade. The problems have been overcome with respect to mincemeat, long regarded as impossible of compression, and the traveler, the soldier, the sportsman, or any other to whom small bulk is a consideration, can now purchase a hard, heavy cube of about two or three inches in size, from which a few fragments chipped off and moistened with sherry, brandy and water, or milk, will prove an excellent presentment of the favorite Christmas delicacy.

"Incidental to these inquiries, many interesting facts were to be gleaned as to the growing part that fruit pulps from abroad are playing in the manufacture of English jams. When a single order from one noted London firm alone amounts to 28 tons of apricot pulp from California, it will convey some idea of the magnitude the system is attaining. Plums, pineapples, quinces, apples, and peaches are also largely utilized in this way, and the latest triumph, as it is claimed, in this direction is that of being able to send into this country strawberry pulp. Small wonder, indeed, that the British grower has cause for complaint that 'the demand is not what it was' for his products. With the treatment of this material on such a scale it is not astonishing that those who know the wonderful climatic advantages of California for drying should advocate the carrying of pulp preparation a step further and presenting the jam itself without the costly encumbrance of old-fashioned packing. As far as dried fruits are concerned, it may be noted that South Australia is the most formidable rival in the English market of the United States, and that, in the opinion of an exceedingly competent expert, if the Australian colonies and New Zealand would pay the same attention to packing and attractive appearance as is done in America, they would easily hold their own in this department. At the same time, it is disquieting to learn that American sweets are coming into this country at the present time in sufficient quantities to cause considerable uneasiness to our own manufacturers of these dainties. Last month's consignment of 'gum pastilles' to be vended at a very cheap rate to one house alone was 2,000 barrels, containing three hundred weight each, and caramels, fondants and the marshmallow sweets, which can be molded into such quaint shapes to appeal to the childish eye, are delivered at our wharf sides to the extent of 8,000 to 10,000 pounds a month. Did American manufacturers show rather more elasticity in their trade methods toward the conservative Britisher, the volume of trade in this direction would be even greater than it is."

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MATTER AND MIND, BODY AND SOUL.*

By C. J. Funck, M.D.,
Cincinnati.

The subject of this essay has been the theme from the earliest times in Egyptian, Babylonian, Hindoo, Persian, Greek, scholastic and modern philosophy, looked at from all points of view to find their connection, and has given rise to the various religious cosmogonies to explain man, the universe, Deity, and man's relation thereto.

In works treating of this subject, in psychology and philosophy, there are three main theories: the realistic, that matter and force, body and mind, are two separate and distinct entities; the materialistic, that matter (brain) produces mind; the so-called pantheistic, that matter and mind are identical, "existence" or "being" itself. Idealism, leading to nihilism, making matter entirely subjective, an idea (non-ego, as does Fichte) is more of historical than of practical importance, as a deduction from Kant's phenomenology. Lastly, the writer's theory that man is "sense-conditioned reason," a phrase he saw in an English criticism of Hegel and Schopenhauer, and hinted at, though not expressed, in Judge Stallo's writings, was a point of view from which the writer could compare all the different philosophical schools of Greece, scholasticism, and those of England, France, Germany and Scotland, materialistic, idealistic, realistic, pantheistic and transcendental, in his search for a unification of science, philosophy and religion.

The notion of two separate and distinct entities, body and mind, having nothing in common, was the view of Kant, and of the Scotch philosophers, and more lately through the example of Germany, in Lotze's philosophy, appears to be the prevailing one in the academies. This theory so conveniently coincides with popular religious and poetical notions of body and mind or soul, the soul inhabiting the body temporarily, having molded, as a plastic, vital force, the body, composed of terrestrial substances, for its uses, as an instrument, medium, to obtain an experience of the world as a probation for some ulterior existence. At death this vital, plastic force called mind or soul, is said to leave the body, which is then resolved into the elements, dust.

This explanation of the interconnection of body and mind, apparently so ennobling and inspiriting to the masses, so simple to the comprehension, and withal so superficial, as it appears, with its two separate and distinct entities, having nothing in common, does violence to the unity of nature, and leaves unexplained the circulatory, respiratory, digestive and other mechanisms of the body, their sympathies with mental force, as well as mental derangement in disease, and insanity, where the psychic disease disturbs all the bodily functions.

As the realistic philosophers, Lotze, and his best American exponents, Ladd and Bowne, nevertheless perceived that perceptions are only modes of activity of consciousness by means of the organs of sense, by which we become aware of the presentations of the senses as "things," they have with good reason asserted that "things" are aggregates of sensations from either the body itself or from the outside world, unified into the thoughts by the unifying action of mind. As a consequence, they have tried to diminish the incongruity of two separate entities by teaching that the material body is pervaded by the spiritual, as a vital, plastic force, molding it, which is a mere phrase; or, according to another, that man is not made up of a body with an immaterial soul working through it, but that man is a "living soul" which temporarily occupies a material body, to leave it capriciously from some catastrophe, as disease, or accident, or at some predetermined time. This mind or soul is so volatile that the physician has often the greatest trouble in preventing its untimely escape from its prison, the body.

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* From *Cincinnati Lancet-Clinic.*

Accepting the conclusion of the realists that things are only thought creations, through the medium of the senses, from various sensations through resistance, it may be here stated that "matter," "substance," "things," are hypotheses we make of various manifestations of activity, termed laws, of which the reality is the immanent Infinite, God.

Matter being only perceived and recognized as such through sense-impressions unified in the unity of mind, it may be said that matter, the material, has no foundation by or in itself, cannot comprehend itself from its own data, exists not through itself, but is recognized as such only in the unity of mind, whereby mind as "existence," "being," functionating, having all capacities (intuitions) and powers for this purpose, comes to recognize itself as self, and thereby affects its essential self-mediation.

Matter does not consist of something solid (*sub stans,* standing under) to which various qualities, as shape, heat, weight, color, taste, hardness, etc., have been attached to form various objects, on the contrary, the so-called qualities of matter, with their mutual compenetration, are only the complex of relations to other matter. Things do not exist by themselves, but only in relation to other things. The different forms of matter, as chemistry shows, are only various aggregations of energy, telluric and cosmic, else why is it that the product of atomic weight into specific heat is a constant quantity?

Existence, as "being," "mind," affects its own interpretation by its own self-exteriorization as external nature, as identical with it, else it could not comprehend nature. Here also the skepticism of the realists is exposed, that sensations may not be true copies of external nature; they have not faith enough in their faculties, according to their theory, that they are not deceived by them. The so-called faculties of mind *necessarily* in connection with the various sense organs, born from their functions, are only different modes of its activity, for the proper interpretation of its own different phases in its exterioration, and called modifications of the material, the manifoldness and multiplicity of nature, and whereby they are resolved into their unity, the unity of thought.

Material nature is nothing, if you abstract the mind; *vice versa,* the reality of mind vanishes if you destroy external nature. Matter and force, body and mind, force and inertia, are an identity, "existence being" itself, and their forced separation reduces them both to imaginary non-entities. But it is not implied here that the reality of external nature is an illusion, only that the unity of mind comes to its own self-consciousness by the reidentification of its self-exterioration, the multiplicity of nature, as itself. Both mind and so-called matter are separate, and as essentially inseparable, like all other antitheses in nature, each of which recognizes its existence in the other. But as matter exists only in virtue of its self-limitation, it is finite necessarily, in space, as relativity, and time as succession, as recognized by intuition and showing an eternal endeavor to efface itself in the unity of thought; in a few words mind states itself in space and time in order to be itself (Stallo, Hegel's "Begriff," Schelling's "Polarity," Schopenhauer, etc.).

As an illustration of the unseverable community of "being" in its subjective and objective aspect, it may be familiarly stated that the recognition of a truth is only an identification and agreement with the laws of mind; all apparent external revelation is but an internal self-recognition. A teacher does not impart, pour knowledge into his pupils, but he arouses their minds to act so as to identify his instructions with their own being, by leading forth their own powers. Socrates and Plato of old were not so far wrong when they asserted that imparting a truth was but a reminiscence of knowledge known in a previous state of existence.

In the religions, stress is laid, without any explanation, on the various activities of Deity, prescient, predetermining and predestinating, under different persons, as it were, the unity "being in intensity" asserting and stating itself as multiple for its own self-recognition and self-identification. Similarly, in the Christian religion there is the Trinity, one and identical with Unity, but with different "persons" (see Bowne, Metaphysics) and functions.

As has been stated, individual sense-conditioned reason as opposed to "intuitive reason, infinity," to know, understand and identify itself as self, posits itself necessarily as a multiplicity in space and time, by its self-exterioration, identical with itself, separate yet inseparable. This constitutes man. This sense-conditioned reason, whose right conduct depends on the continued balance of all the faculties, aided by native intellectual and moral intuitions, disturbs its harmony for the very reason of its limitation, from its unco-ordinated desires over-ruling its judgment in a free-willing agent. This constitutes evil, which even Tertullian considered as a discipline for right conduct and probation (see Bain, Calderwood, Paley, etc.). Lesser degrees of attaining to its own reality as individual creates an unconscious craving for the material of the exterioration of self, termed instinct, as in animals (Stalla, through Oken, Steffens). Where individuation barely states itself as distinct from the universal, subject to the terrestrial and cosmic, there is plant life. As a further elaboration of the unital when exteriorated as universal, material, there are antitheses, polarity. In organized existence this antithesis shows itself as sex, each of which states itself in the other.

From various causes, as unconquerable terrestrial and cosmic influences, the tendency to individuation of the universal is overcome, and the unity barely asserts itself from the universal, is in a passive state, as the idiot and cretin, swayed by cosmic energies. In others, the sympathy with cosmic force is so great as to cause grave disorders of viscera, peculiar to the various zones of the earth; or psychic and bodily states more in communion with nature than in the majority of individuals known as seers, metalloscopists, siderism, hypnotism, rhabdomancy, fortune-telling, astrology, not to be disregarded because so *bizarre,* for there is truth mingled here with deception. In various diseases, the infective fevers, structural inflammations and functional disorders, there are psychic sympathies manifested by delirium, pain, insomnia, convulsions, etc. In others, as in insanity, the differentiations, exterioration of the unital, with its various activities into the universal, takes place without the resumption into the ego, identifying the universal with the unital by its idealization, compenetration of unity with multiplicity, in the depths of cognition and thought. The disorder shows itself objectively in anatomical changes in the ganglia, connecting fibers, and blood-vessels of the nervous system, and the body in general.

The various ganglia and fibers of the brain, and the organs of special sense, are the objective aspect of individual "being," as the sense-conditioned reason, in space and time, therefore finite, called "man," as distinguished from the universal reason called God. (Limited-concepts of Kant, followed out through Hegel—most fearful terminology ever read by the writer.) These ganglia and fibers serve only as generating and re-inforcing cells, with connecting links, for the different functionating centers of the mind, for its different activities, as media for reciprocation with the external world. Their anatomical arrangement, number, size and development are an exact index in the manifold, the objective phase, the extensity of mind, corresponding to the unital, the subjective phase, the intensity of "being." Nature is always reasonable, a perfect logician. (Gœthe, Hunter.)

"Being" is defined only by the way it acts. "Being" as being necessarily activity (for the universe is perennially in motion, there is no rest anywhere; where rest is apparent, it is only relative, or in equilibrium, as an incident to motion), is ever in a process of introversion into itself, the unity, and of eversion of unity or identity into the manifold, called nature, like the rising and falling waves of the ocean. The record of these efforts of "being" to come to its own cognition and identity, after many painful trials and efforts, constitutes history of civilization—not the record of this or that battle, victory or defeat. (Hegel, but better understood in Stallo.)

There is a periodical alternation of unital, individual, and universal, material activity. The seemingly dead body, the corpse, is only a phase of the universal, as distinguished from the self-identifying individual unity, and is not dead, but under the sway of the cosmic forces of the universal, of which it is now a part.

In reference to the re-involution of the universal (the corpse) into individual unity, self-cognition and self-identification of the universal as individual self, after death, inasmuch as nothing is lost in nature, opportunity is given by general instinct and religious faith to hope its accomplishment, as an answer to the query of certain readers. Reasons given in books on psychology and natural theology (Mahan, Winslow, Wayland, Paley) are, that in every sentient being there is a fixed adaptation to a particular destiny; that everywhere in nature, where an impulse, instinct, desire with conscious adaptation of powers and susceptibilities are implanted, conditions are given for its realization; lastly, the theological question of moral retribution.

In the Scriptures, where soul, living soul, are mentioned, it is nowhere implied that the soul is considered as something separate from the body, as is the vulgar belief among the masses, nor do they say that God breathed the soul into the clay, but, on the contrary, that God breathed into his nostrils the breath of life, and he became a living soul. Where the Apostle Paul speaks of the resurrection, he does not speak of the immortality of the soul apart from the body, but he says, "There is a natural body, and there is a spiritual body." "It is sown a natural body, it is raised a spiritual body," showing that he does not consider the soul to be something apart from the body, but one and inseparable with the body.

The view here presented of sense-conditioned reason coming to its own self-consciousness by the identification of its own self-exterioration as the world of matter appears to harmonize much better with the unity of nature, and to explain more clearly the influence and the interaction between the psychic and the material, than the realistic theory of two separate and distinctive entities, mind and matter ,having nothing in common than their juxtapcsition, at variance with the unity of nature, and weakened besides by the fact that "matter" itself is a mental creation, through sensations, before it can be posited as material, to stand opposed to mind.

Materialism, on the theory that brain matter perceives, feels, thinks, remembers and wills, labors under the same difficulty of being a sequence of reflection, through sensation and perception. To say that each one of the millions of cells of the brain is a person does not explain my thinking, nor does an aggregate, an abstract collective term, do anything aside from each individual person. To assert that matter, first perceived as such by consciousness, does all the thinking, is a vicious circle, and would require the necessity that real being, in whose energizing all conceptions of being and the world arise, to deny its own reality in favor of one of its remote conceptions (Ladd).

What the writer has here presented has been the fruit of many years of earnest thinking, assisted, and often obscured, by the ponderous phrases usually employed in the works of philosophers. It was a delight to the writer that at last, after great research among the masters' works filled with technical phrases difficult to comprehend, he has at last come to understand his own identity, physiologically and philosophically.

THE LAW AND THE DOCTOR.

BY J. W. JERVEY, M.D. in *Chicago Clinic.*

The Money Value of a Woman's Life.—Legal decisions tend to show that a woman's life is worth but half that of a man. Five thousand dollars has often been decided upon as the value of a man's life, as many decisions of the court show, while the judgments recently allowed in two separate states, for damages for the deaths of women, amounted to $2,500 each. The Supreme Court of Maine reduced a judgment for $3,500 to $2,500, claiming that the former sum was too large to pay for the death of a woman who had only supported her husband and five children. The Supreme Court of New Jersey also reduced a verdict for $5,000 for a woman's life lately to $2,500. It is truly an odd view of life that is gained from the court room.—*Philadelphia Med. Journal.*

A decision in regard to the right of the state to pass laws requiring the vaccination of children as a condition of their attending the public schools has been made recently in the state of Pennsylvania.

The father of a child that was denied admission to the public school on account of not being vaccinated in accordance with the rules of the Board of Education and an act of the Legislature brought a mandamus suit in the city of Philadelphia. The Court of Common Pleas maintained the right of the Board of Education to demand such vaccination, and, on appeal, the Supreme Court sustained the ruling of the lower court in the following terms: "We think that the court below did not err in the ruling referred to." In the case, Duffield versus Williamsport School District, we hold that school directors in the exercise of a sound discretion may exclude from the public schools pupils who have not been vaccinated.

An Important Ruling Concerning a Physician's Fees.—A very important ruling was made by Judge Armstrong, at Camden, N. J., on August 2. Dr. Godfrey, who had attended a woman for four years, put in his claim as a preferred creditor for $349 against her estate, after her decease. It appears that the patient had been suffering from Bright's disease, and, while under Dr. Godfrey's care, had been recommended by him to go to Bedford Springs, where she died. While she was there, another physician attended her. The claim was made by the defendant estate that not Dr. Godfrey but this other physician, who was called in at the last, attended the patient in her last illness, and that, therefore, Dr. Godfrey had no *locus standi* as a preferred creditor. In this point of view the court, very properly as it seems to us, declined to concur, but ruled, on the contrary, that Dr. Godfrey did attend the woman in her last illness. It seems to us to be clear that as the attendance was continuous over the period of the illness which ended fatally, until the patient, at Dr. Godfrey's advice, went to Bedford Springs; her being there was in fact part of the treatment prescribed by him; and, unless it could be shown that the patient had actually dismissed him after going there, it must reasonably be assumed that she continued to carry out his treatment in general, notwithstanding the presence of another physician, whose attendance should be regarded in the light of auxiliary aid in an emergency, much as would be the case were the nearest physician, say, in an attack of hemoptysis, when the doctor under whose continued care a tuberculous patient was, did not happen to be at home. Surely both physicians in such a case would be properly held to have been in attendance during the last illness.

Rich Patient Must Pay Well.—One hundred dollars a day is a moderate physician's charge when attending a millionaire, according to expert witnesses in the Orphans' Court to-day. Dr. J. O. Flower had filed suit against the estate of the late H. M. Curry for $5,243 for professional services. Mr. Curry was one of the Carnegie Steel Co. partners and died two years ago. Dr.

Flower's services covered five months and a trip to Atlantic City of twenty-one days, at which resort Mr. Curry died. Dr. Flower claimed that he treated Mr. Curry so successfully that his life was prolonged sufficiently to enable him to add at least $1,000,000 to his fortune, the estate being worth about $6,000,000 when he died. Dr. Flower's bill is made up of visits to Mr. Curry's home and the cost of the trip at Atlantic City. For his visits to his residence he charges $25 a visit and $100 at Atlantic City. All the experts agreed that this was not exorbitant.

Board of Education Sustained.—The right to exclude from the public schools any pupil who has been ill, until passed upon by the regular medical inspector of the Board of Education, was sustained in a decision handed down by Judge Ball in the Superior Court at Chicago recently. The opinion was given after the hearing of a petition for a writ of mandamus against the School Board to allow a pupil to return to her classes without first having passed a medical examination.

Common Law Rights and the Physician's Prescription.—Since prescriptions are not protected by copyright it is essential that a physician should know just what his and the druggist's rights are as established by common law touching a prescription in the hands of the latter. The law gives a druggist the legal right to use any medical formula, not copyrighted, as often as he pleases, provided it contains no intoxicants or other poisons, which require a physician's order for dispensing. On the other hand, the druggist has no legal right to allow the physician's name to remain on the container after refilling, or to use that name in any connection whatever with the refilled formula except by the express wish or consent of the physician. The refilling then, is done (when without the physician's order) solely on the pharmacist's own responsibility. Furthermore, it has been settled by the courts:

1. The patient has no legal or other right to demand a written prescription or written directions from the physician.

2. It is right and wise that the druggist demand and procure from the physician his written orders for the compounding of prescriptions.

3. The physician has the undoubted right to designate what pharmacist shall fill his prescription.

4. The written prescription is simply an order from physician to pharmacist. It is, through courtesy and by virtue of custom and convenience, handed to the patient for transmission, but the latter has not, at any time, the slightest right of possession in the instrument.

5. The druggist has at least the right of permanent guardianship (perhaps of outright possession of the prescription, and he must file it for reference and for any form of proper investigation.

6. There can be no right, extenuation or excuse for a copy of a prescription, with physician's name attached, to be taken by druggist, patient or anyone else without the authority of the physician.

7. The careful physician should invariably retain a carbon-paper fac-simile copy of every prescription he writes.

8. If a druggist refills a prescription without the order of the physician who wrote it, he does so on his own responsibility, and he has no legal or moral right to leave or place the physician's name on the container.

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LESS WORK FOR THE DOCTORS.

Far more important and encouraging as "signs of the times" than any developments in politics or industry are the advertisements of physical culture systems and health foods and other means for promoting a sound body. The enormous increase in this kind of advertising within the past five years means a sudden enormous increase in intelligent public interest in health.

And that means oncoming generations with purer, stronger blood and therefore with clearer, more active, more courageous brains. And that, in turn, means that all the problems of living, personal, social, political, will be met and taken care of.

Some one once said that the peoples of Asia were enslaved because they did not know how to say "No." But back of this vacillation lay poor health—the universal Asiatic complaint, due to a universal neglect of health, mitigated though it was by the sanitary regulations imposed under the guise of religious ordinances. No physically robust people was ever enslaved or was ever retrogressive. The first warning of the downfall of the Roman Empire before the hardier Northern races was the wretched throngs of weaklings in the pestilence-haunted cities of the Mediterranean.

Heretofore in the world's history civilization has meant decay, because it has meant taking a nation's best from the healthful open-air toil of the country and decaying and degenerating it in noisome cities where the very ideals of happiness involved destruction of health.

And our civilization of overabundant food, of exercise-ending street cars, and of all manner of muscle-saving and therefore muscle-decaying machinery would have meant speedy ruin to us of the modern world had it not been for the progress of sanitary science and of interest in things sanitary.

The first fruit of this progress has been the doctrine of the relative importance of drugs and the passing of the "family doctor"—two developments that are so rapid that we hardly appreciate them as yet. The other day Sir William Treves, the eminent English surgeon, announced what England seemed to regard as an amazing discovery, that pain is not an evil, but a good—a friendly sentinel rousing the garrison to repel the invader, disease.

It is a grand advance that we have made in discovering that the body does not wish to get sick, does not accidentally get sick, but on the contrary wishes to stay well, and will stay well if its owner is not ignorant or reckless. This discovery will make two great changes in our system of education.

The first will be the teaching of breathing. To breathe properly means health, long life, capacity for work. Yet to-day how many people know how to breathe, have learned how to supplement nature's somewhat clumsy device for carrying on the breathing function automatically? How many people, of the millions who are anxious that their children should learn spelling and reading and ciphering and manners, give a thought to their children's learning to breathe?

The second great educational change will be the matter of diet. In this country and in nearly all of Europe except France we are still eating the things our forefathers managed to digest when they were toiling and sweating terribly in the open air.

Nature made the appetite for food keen because she had to deal with conditions in which the food supply was short and hard to reach, and if the appetite had not been keen, the animal would have easily given over the struggle. We ignore the changed conditions and use nature's no longer necessary bait as an excuse for stuffing ourselves three times a day and eating between meals. If it wern't that sanitation is much better nowdays, and cooking also, the consequences would be even severer than they are. As it is we suffer a great deal from "overwork" and "nervous prostration," don't we?

It is pleasant to eat to satiation. It is comfortable to take no exercise and breathe lazily in one corner of the lungs. But it isn't the way to be long-lived and healthy. And it is the way to let the other fellow who breathes and exercises and eats properly, distance us. Hence the growth of interest in health and the decline of interest in drugs and doctors.—*Saturday Evening Post.*

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EGYPTIAN MEN AND WOMEN.

From *The Nineteenth Century*.

In face the men and women were very much alike, but there is a subtle charm about the female faces that is replaced by a placid dignity in the male. In both the features are delicate and of a somewhat aquiline type, and the figures are tall and slight. There is very little indication of muscle, but the men are broad shouldered and thin flanked, while the women, in spite of their stiff attitudes, are graceful and refined. In both the forms are soft and rounded. The resemblance between the men and the women is, of course, increased by the men being always clean-shaven.

In the paintings and bas reliefs there are certain conventions which do not apply to the statues, and for these due allowance has to be made.

In early times, all drawing and painting on the flat (and bas relief is but a form of this) had to serve two purposes. One was to convey information, the other to be ornamental. It is doubtful which is the earlier of the two. The man of the Stone Age, when he scratched his realistic mammoth on a piece of reindeer bone, either wanted to convey to his brother man that he had seen a fine specimen of this interesting animal, or else he did it because he thought it pretty, or he may have had both motives. In any case, we have here the common origin of art and writing.

The information picture dwindles down through hieroglyphics to mere symbols of sounds, the pictorial origin of which is entirely lost. The decorative picture gradually loses all wish to convey information, and subsists entirely for its pleasure to the eye. But the Egyptians had not got so far as that; when they drew a man, there had to be no mistake what it was. He had all to be displayed, as it were, to the best advantage. The legs were shown sideways, so as to give the whole length of the feet, and one leg was put in front of the other, so that neither should be concealed. Then there came a difficulty about the body; if that were sideways, too, one shoulder would be lost; so the body must be seen frontways. The arms, again, are best seen sideways; fortunately, as both shoulders are shown, they do not interfere with one another. Again, a profile is more characteristic than a full face, but a profile eye is a poor, foreshortened thing. So in this profile we insert an eye seen to its full extent, and then we really have done the man justice. This eye, seen full face while the head is profile, gives naturally a peculiar expression, which makes people talk of the long, narrow eyes of the ancient Egyptians. They very likely had nothing of the kind. Then, again, the twisting of the body makes the shoulders seem too broad. The ideal is certainly broad shouldered, but not so much so as this would make it appear.

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DAIRY STATISTICS FOR 1902.

Mr. Alvord of the Department of Agriculture in Washington has published an estimate of the statistics of dairying in the United States for 1902. The figures in the following table represent millions.

Millions.		Millions Pounds of Milk.
80	persons consume yearly	18,980
200	pounds condensed milk require	800
300	pounds cheese require	3,000
1,550	pounds of butter require	36.422
12	gallons cream require	540
15	dairy calves require	5,050
	Total million pounds of milk	64.792

This is the product of 18,200,000 cows at 3,560 pounds each per year.

The annual consumption of dairy products per person in the United States is estimated to be 19 pounds 3 ounces of butter; 3 pounds 7 ounces of cheese; 1 pound 4 ounces of cream; 2 pounds 4 ounces of condensed milk; 237 pounds 4 ounces of fresh milk.

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, FEBRUARY, 1903

THE DOCTOR AND THE PATENT OFFICE.

THERE is an unwritten law against what is universally termed class legislation. Its object is to prevent the making and enforcing of laws or the granting of privileges that inure to the benefit of one trade or calling at the expense and to the detriment of some other, or of all other trades, callings, professions and vocations.

Notwithstanding this edict, the profession of medicine stands out as a notable exception. No other avocation is so hampered by strained notions of propriety and fine-spun theories of what is held to be professional dignity. Thus the by-laws of most of the medical societies recite with great gravity, that "it is unbecoming to the dignity of any member of this society to"—do what?

To advertise his business by any means whatever in the community in which he does business.

To do aught but indorse the conduct of his colleague when called in consultation, whether he mentally approves it or not.

To take out a protective patent for any process, instrument or apparatus, any device, system or therapeutic combination whereby lives may be saved, health restored or suffering assuaged, no matter how ingenious it may be nor how much time, labor and money it may have cost him, is derogatory to a physician's dignity and a grave infraction of professional ethics. their incomes.

To withhold from the widest publicity any discovery he may make whereby other physicians and surgeons may save themselves labor and expense, and materially increase their incomes is a crime.

No other profession is so hampered. The scholar may copyright all his books, plays, pictures, photographs, drawings, titles and designs.

The tradesman can patent his trade methods, fixtures, labels and trade marks. The architect can protect his building plans, sketches and perspectives. Even the dispenser of religion, whether he be priest or bishop, is freely permitted to seek the protection of the copyright laws or the patent office, in case he devises anything useful or beautiful. Teachers, lawyers, scholars, lecturers, bankers, brokers, agents, politicians, statesmen, poets, musicians, managers, scientists—none of these are in the least hindered by written or unwritten law from enjoying the full benefits, whether of fame or fortune derivable from any of their inventions, discoveries or freaks of fancy.

The doctor alone must surrender all claim to his intellectual offspring. "It is unbecoming to the dignity" of the doctor or surgeon to receive any protection or emolument from anything he may devise, the single exception being that if he kicks over the professional traces and writes a novel—good, bad or indifferent, decent or diabolical, he may copyright it, and if he fails of appreciation, he may publish it—at his own expense!

There is no possible reason in law, ethics or common justice, for this special discrimination. The shrewdest members of the profession, it must be confessed, evade the senseless edict by taking out patents in the name of a friend, and by sharing the profits of schemes of which they are the real but secret and silent proprietors.

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THE DOCTOR AND THE TYPEWRITER.

The old fling at the handwriting of the family doctor, who can seldom decipher it himself, half an hour after the ink has dried, has now been embalmed as a proverb and is no longer quoted as a reproach. The average practitioner is inclined to accept it as a mark of distinction.

The druggist who undertakes to put up his prescriptions has to take a course in telepathy, thought transference and hypnotism, in addition to being an expert in handwriting and "hen's tracks." How many patients have been jogged a little on their journey toward that pale realm of shade from whose bourne no tattler ever returns to tell his tale of woe, no book of earthly records will ever show.

The real ruction begins when the ambitious prescriber is seized with *cacoethes scribendi* and sends twenty sheets of foolscap, sprinkled on both sides with spider's tracks that read just as well backwards as forwards, or up and down, like Chinese writing.

But experts in chirography, such as flourished in the days of Greeley and his contemporary geniuses,—their day and generation has nearly gone by. Here and there a rare example survives, but most of them are already ready to be exhumed as belonging to the fossils of the Nineteenth Century.

The result is that the scribbling doctors are compelled to face the fact that typewriting has become a necessity, if they would have their contributions editorially sanctioned and intelligibly interpreted by the heartless and irreverent compositor.

Professional patronage of the writing machine is therefore steadily increasing.

Last year, in response to inquiries from physicians in various parts of the country, we casually discussed the question of typewriters for physician's use, in our *Department of Notes and Queries*. The object of the inquiries was to decide upon the most satisfactory and economic instrument for the purpose. It may be assumed that it is the overworked and underpaid physician who stands in greatest need of the aid of the writing machine. If this class was overworked only, its members would have little trouble to decide the question of what particular instrument to select, since they could afford and would need to keep a clerk or stenographer, and to leave the selection to be made to suit this individual. But an overwhelming majority cannot afford an amanuensis, and cannot afford to pay "trust" prices for their machines. At that time, in view of the fact that doctors do considerable traveling, making portability a prominent object, we recommended a style of machine that from its lightness is especially adapted to the use of travelers. Following our advice, a goodly number of our subscribers invested in typewriters, thereby causing the editorial staff to smile and the compositors to exult. But a number of correspondents during the year have criticized our selection, for the reason that it uses what is called the "scientific" keyboard. To one who has never learned or does not care to use any other, this is no objection; but the standard or "universal" keyboard is so much in vogue, that even if we admit that it is not as good a one as the "scientific," it is a convenience to have a machine that any operator can readily manipulate, and to be able to work on any standard machine at will, or in emergencies. To the rank and file who operate their own machines the want of uniformity in keyboards thus often becomes a question of much importance.

If price cut no figure it would be easy to designate several makes of instruments, any one of which would be satisfactory. But doctors are not as a rule bankers. Most of them earn their money twice before they get it, once legitimately, at the suffering bedside, and once more in collecting it, when they are fortunate enough to collect it at all. Hence, price cuts an important figure.

The market is now fairly supplied with low-priced writing machines; but low price and cheapness are not by any means synonymous. As obtains with other articles of merchandise the world over, there are many writing machines that are dear at any price, simply because they will not do satisfactory work, are tiresome to operate, or else they are poorly constructed and call for constant repairs. It seems to be the settled policy of the Typewriter Trust to maintain the price of the so-called "standard" machines at $100 or more. To many this price seems exorbitant. With many physicians it is practically prohibitive. Our quest has therefore been to find a machine that possesses practical qualifications in a reasonable degree, and at the same time is sold at a reasonable price. We must thank the manufacturers of this class of machines, who have frankly submitted their products for the purpose of comparative and competitive tests. It is not necessary to enter into details of the tests applied, further than to say that we enlisted the coöperation of expert operators on "standard" machines,—young women who are unbiased, except as all operators are apt to be a little prejudiced in favor of the machine with which they are most familiar.

The machine which has met with the least hesitant approval at the hands of operators is the *"American."* First of all, it is simple in construction. It uses the universal keyboard. It is of moderately light weight, very easy to keep the type clean; and is a good manifolder. It is not easy to disarrange its alignment or to get it out of order. Its price is $40. It is therefore an instrument well adapted to the use of physicians.

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TRUE AND FALSE "TONICS."

The spilling of a little ink may sometimes upset a republic or topple a throne. That depends on the shape of the strokes and curves, parabolas and pothooks it is made to trace on the paper. A good deal of very good ink is spread on paper instead of being poured in the gutter, where it would at least do no harm and tell no lies. In that case it would only be wasted, whereas a good deal of medical ink is so much worse than wasted.

Take the talk about some popular remedies.

Oceans of ink have been squandered on the subject of "Tonics."

Whatever kicks up a certain kind of temporary row in the human system has acquired the title of "tonic." Nitroglycerin is a "tonic," after its own peculiar fashion. It can be made to "boom" things in its immediate vicinity for a brief time, and so it is given in many of those sudden emergencies, like heart failure, angina, collapse and dangerously severe syncope. In fact, manv practitioners, when confronted by a case that seems a bit mysterious and in which there is sudden and severe depression, whether from shock, loss of blood, or "trophic inhibition," fall back upon their hypodermic syringes and tubes of trinitrin. If this does not resuscitate the victim, it is about time to notify the undertaker. The corpse will be forthcoming.

The modus operandi is something like this:

When the circulation, for one or another cause, gets panicky and makes a sudden rush for the central citadels, the heart and brain, thus endangering the entire structure, a very little cartridge of dynamite, exploded anywhere under the skin, or in the stomach, brings the stagnant fluid back to the surface, relieving the overstrain on the central organs in time to save them from damage, rupture, or collapse.

But it is a misuse of words to call this result "tonic;" it is simply revulsive. A real tonic is restorative, not a temporary stimulant. It builds, instead of booming. It strengthens, instead of merely exciting. It feeds, instead of frightening the vital forces. A tonic, in the true sense, is food, a nutrient. It must nourish. It does not follow that all foods are tonics. In fact, there are many conditions in which foods are only added impedimenta, because they can not be utilized. It is the old story of leading the colt to the trough but utterly failing to make him taste the water.

Another very common misuse of the term "tonic" consists in ascribing tonic properties to drugs and preparations which do not add the slightest fraction of fresh strength or vigor to the system, but merely call out and utilize the reserve forces which are normally present in every healthy organism. When a bank loses its reserve fund it is well along on the road to suspension. It is not different with the human system. When a "tonic" proves to be merely a special draft on a vital fund, that is already on hand and being held for use in those special emergencies to which all human beings are subject, it is a false tonic. In other words, it is not a tonic. A large majority of all the reputed tonics now in such extensive use belong to this class. They are special requisitions, and the reactions they induce should be classed as vital overdrafts. Only those drugs, "bitters" and "vegetable" restoratives should be called tonics which supply some form of specially needed nutritive. Outside of drugs, certain forces and processes are properly classed as tonic, because they develop or increase muscular or nerve strength such as exercise, electricity, massage, etc.

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SCIENTIFIC ACCURACY IN THE LAY PRESS.

WHAT sort of paper does a physician want in his house? Not one whose columns are at the service of every charlatan who is clever enough to exploit himself through the ignorance—or worse—of its editors and proprietors, which is filled with pseudo-scientific tales of impossible operations and sensational "discoveries" that make the judicious grieve. In a time when the lay reporter is the butt of the jokes of the medical press, *The Tribune Review* is quoted with respect by medical journals, and the accuracy of its editorial statements on scientific matters is attested by so high an authority as Lord Kelvin; while Professor W. T. Spillman, the discoverer of Mendel's law, says that "the reason *The Tribune* is quoted so widely, and especially on scientific subjects is that it is invariably so accurate."

The *Review* gathers and sifts for you every week the world's history, and serves it up with lucid comment. That publication, for the subscription price of $1 a year, places at your service the trained abilities of the corps of correspondents (in this and foreign countries), editorial writers, literary, musical, art and dramatic critics, who coöperate in the making of a great metropolitan daily paper, which would cost you $10 a year if you had it delivered to you every morning.

The *Review* is an educational paper in the best sense. Not only are its general features such as to make it an admirable adjunct in the formation of character and opinion, but it contains special features of interest to parents and teachers. For example, a series of articles entitled "Careers for Young Americans" is now running in its pages, including the following papers:

"Railroading," by George H. Daniels, general passenger agent of the New York Central Railroad,

"Journalism," by St. Clair McKelway, Editor of *The Brooklyn Eagle,*

"The Stage," by A. M. Palmer,

"Architecture," by Thomas Hastings, of Carrère & Hastings,

"Engineering," by a prominent engineer,

"Medicine," by Dr. D. B. St. John Roosa, president of the Post-Graduate Hospital, New York City.

* *

TRAPS AND PITFALLS IN THE PRACTICE OF MEDICINE.

ON this timely topic the *Medical News* has this to say:

The practice of medicine has the tendency to bring out whatever is best in a man. Let his natural bent be scientific, literary, humanitarian, philosophic or business-like, he will find an expression for his tastes in his daily work, and his methods will inevitably be stamped by his predominating characteristics. His road to success, however, is beset by dangers that bear no relation to his skill or conscientiousness. They are not the traps of quackery, but the unseen pitfalls into which the most earnest and competent may unwarily slip in their professional zeal.

For instance, the man who neglects to secure his financial position by careful investments, insurance, and prompt collection of his bills, may arrive at the age when he ought to cease active practice, and yet be obliged to continue to make his daily living. Too often keen, able, practitioners develop into querulous, jealous, disappointed old men, because they are obliged to compete with the younger men when they ought to have retired with honors.

The neglect of business methods is one of the commonest pitfalls of medical men. An easy-going doctor will let a patient run up a bill for a year or two until it assumes formidable proportions; and the patient, fearing to be asked for it, will call in another man, and intimate to friends who inquire why the change was made that the doctor was in some way at fault.

The honest physician is constantly losing cases that would be of pecuniary benefit, because he refuses to perform some questionable or unnecessary operation, and when another less scrupulous man consents to do the work, the honest man is made to bear the slur of implied carelessness or lack of skill to hide the real reason why he is no longer that person's physician. It often happens that when a doctor plainly tells the patient that there is nothing the matter with him, or advises treatment that means self-discipline or active exercise, the hypochondriac or lazy invalid will summon a less disinterested man, and cast innuendos at the former doctor's professional ability.

The possibility of illness and death from infection and the possibility of social ostracism due to deliberate blackmailing or medical scandal are pitfalls that are too well known to need more than a caution by way of comment.

Dr. J. Dundas Grant in delivering his presidential address before the Hunterian Society of London ("Traps and Pitfalls in Special and General Practice") related a number of interesting personal anecdotes of the narrow escapes he had had from falling into some traps, and the experience he had gained by stumbling into others. He thinks that the errors which result from neglect of physical signs are perhaps greater than those that result from defective investigation of symptoms, but the old family doctor, clinging to symptomatology, and the hospital graduate, keen on physical signs, are equally liable to fall into traps by neglecting to combine these methods of diagnosis. But Dr. Grant warns the younger men that it requires as much sympathetic tact as technical skill to carry out a thorough physical examination, as patients are apt to resent what they call being "pulled about." He cites the case where as a young man he was warned that a certain elderly gentleman did not like to have his heart examined, but feeling that the case demanded an examination, he used his stethoscope and was promptly dismissed.

Those who have made the mistakes that Dr. Grant frankly acknowledges, such as diagnosing lumbago instead of aneurism of the abdominal aorta, catarrh of the uterus, instead of suppuration of the Fallopian tubes, hemorrhoids instead of epithelioma of the rectum, and dyspepsia instead of carcinoma of the stomach, will be interested in his description of the pitfalls he learned to avoid through the instructive lessons of physicians whom he called in as consultants.

But on attaining the rank of consultant himself Dr. Grant remarks that he was much struck with the ease with which he seemed to arrive at the diagnosis of the obscure cases to which his friends called him, as contrasted with the difficulties he had had in analyzing his own cases. The conclusion is evident, he remarks, that a man called in consultation in a particular case, seeing it for the first time when its features are well developed, is in a much more favorable position for diagnosing it than he who has watched its gradual development from the outset, and there is need for the charitable and honorable consideration on the part of the consultant toward the practitioner placed at such a comparative disadvantage. The reverse position, however, may call for charity on the part of the family doctor, who calls a consultant for a single examination of a case when it is too obscure to allow of absolute diagnosis. A few hours or days later the symptoms may have developed so that he reads their meaning plainly, and if he is narrow-minded may utter an unfair opinion of his colleague's judgment.

The traps into which the surgeon may fall, for lack of medical knowledge and those that beset the physician who knows but little of surgery, may be best avoided by taking advantage of the special knowledge of one's fellow practitioners. While the family doctor should emulate the exactness of the consultant, the latter should try at the same time to look at the case from the point of view of the general practitioner; for the traps into which both general and special practitioners are likely to fall are many, the former for want of special knowledge, and the latter for want of general regard to medical considerations.

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THE JOKE WAS ON BURTON.

In his book, "A Chat About Celebrities," says the *San Francisco Call,* Curtis Guild fills some 300 pages with gossipy talk concerning notable men and women whom he has known or of whom he has some memento. Numerous anecdotes are told of John Brougham, actor and playwright, and his practical jokes. He it was who introduced the now somewhat frequent practice of actors taking a position in the audience and creating a prearranged disturbance with those on the stage. On one occasion he so deceived a policeman who undertook to eject him that the farce came near to being a reality. Burton, manager of the Chambers Street Theater, New York, had expressed contempt for the policeman, and had affirmed that "he could tell an actor, after once seeing him on the stage, as far as he could see him." A few evenings afterward Burton came down to the theater, and in a niche at the stage door found a burly Irishman in a big, rough coat and slouch hat, smoking a short, black pipe—of all things Burton's abomination. Drawing back in disgust, he shouted:

"Here, my man, get away from here; move away!"

"Divil a bit," growled the intruder, emitting a cloud toward Burton that made him draw further back in disgust.

"What do you want here?" ejaculated the manager.

"Sure, I'm waiting for Mr. Brougham," was the growled reply.

"Well, Mr. Brougham does not play until the second piece. Go away and come back at 9 o'clock."

"Divil a bit," growled the intruder, "till I see Mr. Brougham."

"If you do not start I will call the officer," said the now irate manager, as the bystanders paused to see what was the matter.

"Call him, and bad luck to yiz!"

This was passing all bounds of endurance. Stepping to the center of the corridor of the theater Burton summoned the officer, the same one whom Brougham had so successfully deceived.

"Here, Bilkem, haven't I told you to always keep this stage door clear, and yet here is an infernal Irishman smoking his nasty pipe directly across the threshold!"

The officer came out promptly. "Now, then, start out of this," said Burton.

"Divil a bit," was the gruff reply.

"Put him out," said Burton to the officer, who approached, cane in hand, and laid his hand upon the shoulder of the offender.

Much to his surprise, however, the latter started up, threw his pipe into the gutter, and, pulling off his slouch hat and a wig, he advanced to the glare of the gaslight and said to the astonished manager in well-known and familiar tones:

"Mr. Burton, do you think, after seeing him on the stage, you can always tell an actor as far as you can see him?"

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

A SYMPOSIUM OF PROPHYLAXIS.

By Samuel S. Wallian, A.M., M.D.

Third Paper.

PHOTOTHERAPY.

This subject is so rapidly looming into importance, in the modern medical world that it ought not to be dismissed with the scant notice it has thus far received.

That light is a potent factor in therapeutics and destined to compel and receive more adequate recognition than has yet been accorded to it is no longer a debatable question. Here and there a chemist or amateur scientist has been agitating it, for some years past, without attracting much interest, while medical text-books are practically dumb on the subject.

These points are now established:

1. The solar ray is not a unit, but consists of three—possibly four—dissimilar rays.

2. These rays are quite distinct and unlike in their luminous, calorific and chemical activities.

3. All these rays possess therapeutic potency, but each in its own province and of its own kind.

4. This potency is not only different in kind but is possessed in contrasting degrees by the different rays. It is moderate in the luminous, stronger in the calorific, and intensely strong in the chemic or actinic.

Heliotropism illustrates the powerful influence of light on the vegetable kingdom.

The growth of plants is most affected by the yellow rays. Red increases the fragrance, while the ultra violet rays stimulate efflorescence. Blue rays are found to retard plant growth, and the concentrated rays of the solar spectrum destroy plant cells and cause them to shrivel. Neither plants nor animals can bear constant exposure to strong light, but require periods of rest from it, in order to fully develop and flourish. Animal bodies exhale more CO^2 during exposure to light than when kept in the dark. A starving dog, all other conditions being the same, loses more weight during the daytime than during the night. Poultry can be more rapidly fattened if confined in a dark apartment; and Heile shows that certain animals die quickly if coated with black varnish, but do not suffer any material injury when coated with transparent varnish.

Metabolism and oxidation of the tissues are both decidedly stimulated by the action of light. Cretinism is most prevalent in valleys which are so situated that sunlight rarely penetrates them; and it is asserted that Eskimo women are habitually affected with amenorrhea, during the prolonged Polar night. These and other pronounced physiologic effects that might be cited abundantly demonstrate the possibilities and potency of light as a therapuetic agent.

The germicidal properties of sunlight have already been cursorily considered. All the bacteria, parasitic life and fungi are quickly destroyed by direct sunlight; and this includes some forms of bacteria that resist the action of steam and the most powerful chemical germicides. Among these, according to Koch, is the tubercle bacillus. The *bacillus tetani* is more promptly destroyed by direct sunlight than by a 1 : 1,000 solution of corrosive sublimate.

Houses on the sunny side of a street are often almost exempt from infection, while those on the opposite or shady side are suffering from an epidemic.

The lesson in connection with Preventive Medicine is sufficiently obvious.

Quite recently the mysterious power of the ultra violet, and the newly discovered X-ray has been tentatively invoked in the treatment of the *opprobriæ medicinæ*,—lupus, epithelioma and carcinoma. Reports of radical cures of the two former are now becoming numerous and seemingly well authenticated. Time alone will determine whether or not they are permanent. One case of carcinoma of the pylorus, in which the diagnosis was confirmed by an exploratory incision and microscopic test, has come to the writer's notice. The operating surgeon, after exposing the tumor, declined to proceed, declaring that the case was both hopeless and inoperable. The patient was informed that the disease would prove fatal within a few weeks at most. Three months' daily or tri-weekly applications of the X-ray caused the complete dispersion of the induration, the cessation of all the physical symptoms, and the apparently perfect recovery of the patient. Considering that the power, nature and possibilities of the new agent are practically yet an unknown quantity, the hope is that the history of "specifics" heretofore vaunted will not be repeated in this last and most promising agent.

SEPSIS AND ANTISEPSIS.

These two antagonistic and in a sense fundamental forces affect all organic matter. Sepsis is a result of the evolution of ptomains, or of the action of some one or more of the many organic ferments, in other words microorganisms. Under certain conditions the human organism becomes a veritable ptomain factory. Under other inimical conditions and exposures it is transformed into a bacterial culture ground. Sepsis is therefore held to be a foe to life, a disorganizer and destroyer. On the other hand antisepsis is its antagonist, and performs the office of conservator and protector. It opposes and inhibits the formation of ptomains, and it destroys them when formed. It inhibits putrefactive tendencies, and sterilizes the culture media of all hurtful microorganisms with which it comes in contact.

This places antisepsis among the important factors in any system of preventive medicine. Antiseptic agencies and materials are usually divided into natural and artificial. Such a subdivision is more fanciful than legitimate, since chemical compounds are as natural as simple elements. Many, in fact most metals are never found in nature, except in the form of compounds—oxids, carbonates, chlorids or sulphurets. Furthermore, barring one or two gaseous bodies, it would be hard to name a single antiseptic that consists of a simple element.

As this item of our subject has been more or less interwoven with every phase of its discussion it may be dismissed, with the succinct but comprehensive statement that antisepsis has for its field, object and aim the enhancement and conservation of the individual vital endowment.

FOOD AS A FACTOR.

By nature, necessity and habit man is an eating animal. This necessity for eating, whether imposed as a penalty—the Primal Curse—or merely arranged as a part of the Creative Plan, is the original, constitutional and questionless handicap of the human race. Man can dispense with clothes, forego his church, and get on without either doctor, dentist or dominie; but he must have a cook.

The question of food compels and controls the bulk of the commerce of the world; absorbs more than one half the time, energy and ingenuity of the human mind, and constitutes the major part of the expense of living. One can dispense with his coachman, his counselor and his club membership, his daybook and even his domicile; but breakfast, dinner and supper are daily and decided necessities. *Diet* was no doubt once synonymous with *Deity*.

Exercise, labor, recreation, amusement,—all these are mere incidentals and concomitants that revolve around the dominant and predominant function of feeding.

The lunatic who said, "Let me make the songs of a nation, and I care not who makes its laws," ought to have said, "Let me make the bread of a nation, and its law-makers will have to come to me for all their inspiration."

The physical man, chemically considered, when turned out of his last cradle at the crematory, consists of a few well-known elements, chiefly lime salts. A handful of phosphates on one side, a half yard of tail and a quart of hair on the other, represents, in substance, the difference between a man and a monkey. It is the surplus phosphorus that fashions and fosters the thinking part of the man. It is his psychic element. He thinks, feels and functionates in phosphorescent flashes. If he lacks phosphates he lacks wit. If he is neurotic it is because his nerves are semi-starved. He needs to be fed, not physicked. Muscles are of no use if there is no psychic force behind them. Mental energy, psychic force is derived from organic phosphates, and these are derived directly from food.

Man's citadel of life is his stomach. Your trained athlete and pugilist instinctively maintains unremitting guard over—the solar plexus!

These abrupt and unconventional postulates admitted, there is no excuse for science if she trips in her efforts to properly feed the human animal. The food of a nation fixes its rank among sister nations. The food of an individual fixes his standing among his fellows. It determines his growth, character and development in every phase,—physical, intellectual, and moral. The diet of the individual predisposes him to health, or renders him susceptible to invasion by disease. The infant sucks infection from his mother's breast; the adult buys it from his dishonest butcher, his dirty baker, and his adulterating grocer.

The diet may contain in itself the germs of disease,—direct infection,—or it may lack elements of nutrition essential to the integrity and normal vigor of the organism. The first accounts for invasion by germs of tuberculosis, typhoid, etc., and by parasitic enemies,—tenia, trichina etc. The second results in some form of degeneration,—anemic, scorbutic, etc. A third form of degenerative process may result from mere hypernutrition. Some organisms instinctively resent surfeit, and refuse to be overfed. Others tolerate dietetic excesses, and digest a superabundance of nutrition; but, unable, on account of structural limitations, to use it for building purposes, they make shift to dispose of it in the form of redundant tissues, fluids, hyperplasias and hypertrophies. Victims of hypernutrition are consequently subject to sudden and dangerous congestions. Structural and obstructive changes occur, and plethora, plastic deposits, tumors, abnormal growths and apoplectic seizures are a frequent sequence.

Certain diseases result from faulty metabolism caused by wrong dietetic habits. Food elements that prove to be incompatible with the digestive or assimilative organs, or with the general system, or with the temporary condition of one or the other of these, are changed into compounds that are inimical to the circulating fluids and the various tissues. Sundry forms of disease, chargeable to these morbid products, have been classed as diatheses,—lithiases, uricemia etc. They are curable, if at all, by a scientific and rigid regulation of the dietary.

It is not sufficient to rely on the purely negative resources of rejecting all forms of contaminated foodstuffs, as infected flesh, milk, cheese, butter, water, cereals, fruits, etc., it is also necessary to prevent autoinfection from obstructed or faulty conditions of the digestive tract and of the general system. Furthermore, the system itself may be in perfect condition, yet from mental influence or psychic causes, the most perfect forms of food may be transformed into dangerous by-products, alkaloids, ptomains, or toxins, and these absorbed by the svstem, result in fatal or incurable maladies.

One of the most dreaded accidents of modern days—so named in current speech—perhaps not notably more frequent than formerly, but more frequently noted, because more accurately diagnosed,—is *appendicitis*. It is no doubt, in most instances, a preventable "accident." Although not usually or uniformly admitted by medical and surgical authorities, it may almost invariably be traced to one or more of the following causes:

1. Indiscretions at table.
2. Habitual or temporary constipation.
3. Injudicious use and abuse of cathartics.

Indiscretions at table may relate to either quantity or quality, or to imperfect mastication and to hasty ingestion. Quantity may be in excess from observing too short intervals between feedings, or to excessive indulgence at any meal, or at each meal. Quality may relate to the kinds of food used, to the unbalanced proportions of the several kinds, or to its methods of preparation. An injudiciously selected dietary sooner or later results in acute or chronic indigestion, a condition that is found as a prelude to every case of appendicitis, with scarcely an exception. A perfectly healthy digestion is at all times a reliable safeguard against this serious local infection.

Constipation is usually the dominant symptom of the indigestion, and is so uniformly present before the attack that some authorities hold it to be the sole cause of the disease. While constipation induces conditions favorable to inflammation and degeneration of the appendix, this tendency is no doubt greatly aggravated by a frequent and unwise use of cathartics. Under such treatment the bowel is gradually robbed of its normal power of recuperation. Prevention is to be sought through the intelligent selection of a proper dietary, the avoidance of clogging, constipating and debilitating food, and the adoption of simple and rational means of relief, instead of drastic measures, when a constipated habit has been set up.

WATER AS A MEDIUM OF INFECTION.

Breathing precedes drinking, in the biologic history of the race, but human beings imbibe deadly germs a hundred times as often as they inhale them. A majority of most fatal epidemics originate and are disseminated through the medium of impure water. The demon of typhoid, as well as the causes of cholera, diarrhea, dysenteria and nearly all forms of the infectious diseases, lurk in the hydrant, the surface-draining well, and the poison-percolating spring. Most of the virulent or pathogenic germs are found in water, and can not survive or reproduce their kind except in the presence of moisture. No other source or element is half so prolific of disease-breeding bacteria. In comparison the atmosphere is fairly aseptic. Rains wash organic matters, as they accumulate on the surface of the earth, carrying them into springs, streams and reservoirs used for the water-supply of cities and towns. By percolation from the surface, and from drains, cesspools and privies, into wells and other sources of drinking water, the germs of disease are widely transmitted, and become the source of destructive epidemics. The history of typhoid is a history of contaminated water-supply.

As a drinking animal, the human adult, when in ordinary health, requires 40 ounces or more of water daily, in order to properly supply the wants and wastes of his body.

Water may be very impure without carrying disease germs. It may hold in solution mineral salts to such an extent as to be insidiously injurious to health. Preventive medicine needs to strike at the roots of this largely unsuspected cause of serious chronic disease. Filtering removes organic impurities, when properly and thoroughly done; but it does not eliminate the earthy salts held in solution. But a large majority of the filters in the market are mere strainers, and delusively ineffective. The only filter recognized by scientists as practically trustworthy in the removal of disease germs is the one devised by Pasteur and known by his name.

Boiling sterilizes water, but at the same time it drives out the atmospheric air, CO^2 and oxygen held in suspension in all sparkling waters, and thereby lessens their palatability and refreshing qualities.

The only absolutely reliable method of purifying "hard" waters is by distillation. Distilled water, when properly reaërated, is ideal for all domestic and culinary purposes.

The free ingestion of water, in excess of the demands of thirst, as a prophylactic measure, is beginning to attract the attention of physicians, physiologists and students of sanitary science everywhere. It stands to reason that if water is the most perfect solvent, diluent and detergent in nature, its free use in the system will not only often prevent the onset of serious maladies, but will dissolve out and eliminate impurities, morbid deposits and toxic accumulations. Thus, attacks of rheumatism, sciatica, neuralgia and migraine have been effectually forefended, and their rhythmic recurrence abolished, solely by the copious and regular ingestion of pure water.

This is a field which promises incalculable returns for the study required for its more thorough development. The average subject takes too little fluid, and is too careless as to its quality. Water in ample supply is needed at every step of the digestive, assimilative and metabolic processes of the organism. Any dearth of it causes a greater or less degree of digestive disturbance and tissue degeneration. It retards elimination, and thus causes the retention of morbific matters, which finally become a serious menace to health and a frequent source of incurable organic lesions. The man who complains of being "tired," without legitimate cause, is the one who is carrying an overload of toxins, self-generated and non-eliminated. He needs excretion, not stimulation; the pump rather than pepsin!

MAKESHIFTS AND SUBSTITUTES.

Many persons who avoid the use of pure water make liberal substitution of some one of the popular beverages, tea, coffee, cocoa, malted, vinous or spirituous drinks. The universal use of these substitutes, and especially of hot beverages at table, is a matter of more moment than authorities on dietetics have ever attached to it.

The annual consumption of tea and coffee in the United States reaches the enormous total of 900,000,000 pounds. Leaving out of the account very young children and others who do not join in the habit, the average annual consumption of the actual users is about *twenty pounds per capita.*

In Great Britain the consumption of tea amounts to over 600,000 pounds per diem. Stated in gallons of the beverage the figures are 1,500,000,000 gallons daily. Assuming that one fifth of the total population do not take tea, this gives an average daily dose of the equivalent of *four grains of caffein* for each consumer.

That the daily and persistent use of this quantity of an active stimulo-narcotic can be without appreciable effects on the health and longevity of the users is not for a moment to be supposed. A cup of strong coffee is equivalent to two grains of the alkaloid, caffein. No sane physiologist or physician will commit himself to the assertion that the habitual use of from four to six grains of caffein per diem can be otherwise than disastrous. The system accomplishes wonders in the matter of cultivating tolerance; but there is a limit, reached by all in time, when some organ, gland or tissue strikes its colors and succumbs. The death certificate may allege one thing or another; overworked kidneys are the unfortunate witnesses, and caffein is usually the heavy villain of the tragedy.

Than tea and coffee drinking no one cause is more prolific of the distressing dyspepsia that has become so common as to be dubbed the "national disease." So common that it is either ignored or approved by a majority of sanitarians, dietists and physicians, the use of these beverages is unquestionably a constant and by no means inconsiderable cause of neurotic tendencies, neurasthenia, chronic insomnia, a general lowering of the constitutional vigor, and an abbreviated longevity.

Coffee allays the sense of hunger, without supplying any appreciable nutriment. The effect is therefore delusive, and amounts to a vital fraud. It increases nerve tension, but furnishes no sustenance to the nerves, and, as over tension means corresponding depression, no other evidence of its ultimate hurtfulness need be adduced. To dispute this is to deny that caffein is a narcoto-stimulant.

PSYCHIC MEDICINE.

The study of prophylactic measures will not be complete if it fails to take into account the important influence of psychic development and mental influence. It is no longer necessary to seek for evidence that mind influences matter. Faith has in all ages made miracles a possibility, and no less in this than in those long gone by. Faith still removes medical mountains, "curing" some distressing conditions that but poorly respond to the resources of the pharmacopœia. It makes little difference in what the faith is centered, whether it be Jupiter, Jehovah, Juggernaut or Jesus; Our Lady of Lourdes, Mary, or Mrs. Eddy. If it be genuine and enthusiastic faith the results are the same, for the logical reason that the effects of all faith, prayer and petition are subjective instead of objective. If the supplicant is half-hearted or half hypocrite, and lacks faith in the idol, deity or devil to whom or which he appeals, or if he does not feel the utmost faith in his petition, there will be neither answer nor cure! The man without faith in the perfect lucidity of the occult, and the sacredness of moonbeams, receives no spirit messages, and hears no angel voices.

Faith is the *sine qua non* of most of the modern "systems" of non-medicinal healing,—Christian Science, Faith-Cure, Dowieism, Mind-Healing, and the like. To pooh pooh the influence of faith in medicine is to admit one's want of observation, want of sagacity, or lack of honesty. Faith is an invaluable adjunct to every therapeutic measure and system of practice. It is no less valuable in its relations to the prevention of disease. No thorough scientist is satisfied to dismiss the often preposterous claims of the faith-faddists and the bonepathists with the sweeping designation of delusion.

True, it is principally mental and spiritual mountains that have been dislocated by faith. When it comes to physical facts, material bodies and organic lesions, faith calls off the combatants, and flies the white flag.

That the disciples and manipulators of these cults and pseudo doctrines rely in a great measure on fraud and thaumaturgy does not invalidate the fraction of real truth involved. These "healers" unquestionably "cure" certain ailments, because said ailments are amenable to psychic, mental, hypnotic or "magnetic" influences; and the skilled manipulators of these faith-trusts and fool-promotors invoke these influences to the fullest possible extent. When, as often occurs, they fail to "cure" they do not let this incident, or accident, in the least prejudice their alleged "system," whatever it may be. They promptly and simply, and with the utmost emphasis and *sang froid,* attribute the failure to a lack of faith on the part of the patient, or victim. (?)

MEASURES THAT ENHANCE IMMUNITY.

Every chapter in the history of medicine proves that it is easier to prevent than to cure disease. This truism can not be stated too emphatically nor reiterated too often.

Whatever enhances vital tone fortifies the system against invasion,—increases its powers of self-defense, and adds to its immunity.

Some of the commoner means of accomplishing this result need not be mentioned.

A few of those, not as common as they should be, may be briefly noted.

Winternitz and others have demonstrated that heat and cold applied to the surface of the body can be made of decided potency in changing the chemic and morphologic constitution of the blood. Marked leucocytosis follows the application of cold to the entire surface. The most feasible method of making these thermic applications is by means of water,—the cool bath. This, at last supplies a scientific basis for the heterogeneous mass of results so long empirically claimed for hydrotherapy.

A secondary result of the application of water some degrees colder than the body, is an increase in the hemoglobin. In a series of 80 cases, in which the most careful and accurate tests were recorded, the maximum increase of red corpuscles amounted to 1,860,000 per cubic millimeter. The maximum increase of leucocytes was to thrice the original number, and the increase of hemoglobin amounted to 14 per cent. This increase reaches its highest figure about one hour after the application, and it recedes to normal after the lapse of several hours.

In cases of anemia, applications of cool water, seconded by massage and muscular exercise, resulted in an increase of both leucocytes and erythrocytes, and in these cases the increase was to a certain extent permanent.

The same observer shows that hot baths, the steam cabinet, and other forms of applying heat to the surface of the entire body, decrease the count of erythrocytes, and thus scientifically accounts for the effects of these procedures when appealed to in sthenic forms of fevers and inflammations, and as a prophylactic for plethoric persons and those who are subject to apoplectic seizures.

"Health by good living," commonplace as it has come to sound, means a whole column on the subject of prophylactic medicine. It is the lean and half-starved kine that harbors vermin and becomes an easy prey to the barnyard pests. Your fat and frisky heifer, and bellowing, belligerent bull, with clean skins and coats as glossy as satin, never tolerate lice, while they flout the insinuating bot-fly. The victims of wasting diseases *starve to death.* Invalids who recover are *fed back to life!*

Immunity can be cultivated by any and every means that promotes physical or intellectual vigor, or that increases the number and activity of the blood corpuscles, and thereby stimulates cytophagism—self-defense.

Prevention can be practised in a general way against all forms of disease; and in special ways against the special forms,—variola, typhoid, diphtheria, intermittent and relapsing fevers, cholera, yellow fever and the plague. The auxiliaries that may be invoked as aids in this warfare are so numerous and so generally self-evident that they need not be mentioned.

In this connection it has been for some years a fond and not quite Utopian dream that in the near future the race may attain a degree of absolute immunity from all the infective forms of disease by means of perfected antitoxic serums and concentrated lymphs,—seminal germs, and life centers—from the animal world. In other words, the antitoxians and organotherapists would transport the race, *en masse,* to a realm of universal safety, long life and perennial vigor, by the vicarious sacrifice of all the superannuated equines, hircines, ovines or other specimens of the lower orders.

The dream is not ideal, for it is now the privilege and opportunity of the physio-scientists—possibly the chemists, but more likely the electricians, with their ions, anions, cations, electrolytes, or some even more mysterious principle for which no name has yet been invented,—to make the ambitions and attainments of the present enthusiasts seem cheap, crude and bungling. We must secure our immunity from cleaner sources, and without the necessity of practising highway robbery at the expense of the innocent and helpless horse.

The human organism must be made to

evolve its own antitoxin. This is the true ideal, and nothing short of it will ever be a finality.

OBLIGATIONS OF THE HOUR.

The gradual education of the public mind and conscience, and the elimination of the current tendency to exalt the significance of the occult and unsubstantial—the building of air-castles on the basis of superstition and the supernatural,—are at this hour incumbent on medical men of every station, whether as teachers or practitioners. It falls to them to inculcate a better comprehension of the solid facts of physiology, and a more consistent and more general faith in rational measures of diet, hygiene, sanitation and the known laws of prophylaxis. Growth in this direction is certainly gaining momentum with each passing year and decade. The importance of a more general diffusion of sound knowledge concerning the laws of health by right living, of further fortifying individual immunity, and of combating the contagions and infections, is impressing itself on all teaching bodies, whether lay or professional, as well as on legislative bodies, literary workers and the daily press. In this fact is clearly shadowed the most encouraging promise of the New Century. The handicaps of prejudice, superstition and false teaching are being unloaded. The halo of twilight just now suffusing the lives of those intellectual giants who have so nearly pierced the eternal secret for us is already deepening into dawn. The sunrise of the day-to-be will banish the clouds of uncertainty, blind faith and blinder skepticism that have so long shadowed the race.

The dispersion of intellectual darkness, the dawn of intellectual day, and the death of intellectual sham will develop that clear vision so indispensable to a rational comprehension of the essential conditions of life and the best means of avoiding disease.

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MEDICAL ALLUSIONS IN SHAKESPEARE'S PLAYS.*

By P. S. Donnellan, M.D.,
of Philadelphia.

The physician who is a student of Shakespeare's plays cannot fail to be impressed with the extensive knowledge of the art of medicine displayed by the poet; indeed, so exact and intimate is his familiarity with the healing art as practised in his day that many ingenious arguments have been advanced to prove that the "myriad minded" must have been actually engaged in the study of medicine during some of the obscure years of his manhood. It is reasonable to suppose he was assisted in his researches by his son-in-law, Dr. John Hall, who married his daughter, Susanna, in 1607, and was a physician of wide experience and much originality. Shakespeare lived with Dr. Hall and his daughter at the "New Place" in Stratford from the time of their marriage until his death in 1616. During these years of intimate association it is very probable that the plastic mind of the great dramatist received many enduring impressions of the medical arts from his accomplished son-in-law, who also attended him in his last illness, the "new fever," then epidemic in Stratford and its vicinity. The "new fever" seems to have been a well-marked case of smallpox which, in those prevaccination days, was usually fatal.

In considering the medical allusions to be found in Shakespeare's plays, it must be remembered that the dramatist wrote in the days when the science of medicine was in its infancy and had not fully emerged from the mysticism of antiquity, so that any comparison of his medical knowledge with that of to-day would be impossible. As the medical art of Shakespeare's time appears to us obselete and unscientific, so may our boasted achievements in medicine, surgery and the collateral branches seem 300 years hence. Bucknill (to whom I am indebted for much information in the preparation of this paper) tells us that Shakespeare's theoretic knowledge of medicine closely corresponded to that prevailing in his time amongst its professors and that he had authority for his most glaring absurdities, which proves that he was wisely read in medical literature. His references to the medical profession are characterized by almost unvarying respect; indeed, it would be difficult to find in the works of any non-medical author a higher ideal of the physician and his calling than he gives us. Only in two well-known instances does he hold the physician up to ridicule. Once, in "The Merry Wives of Windsor," in the character of Dr. Caius, whom Dame Quickly declares is a combination of the fool and the physician, and who is supposed to be a burlesque on Sir Theodore Mayerne, a French doctor who was expelled from the College of Physicians in Paris in 1603 because of his "rashness, imprudence and ignorance of true physick." He afterward settled in London and became famous as a fashionable doctor and court physician. The second instance is that of Dr. Butts in "Henry VIII," but he is shown as a courtier rather than a physician.

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* From *American Medicine.*

The physicians who were the creations of Shakespeare's brain were portrayed as men of high character and skilled in the practice of their time. In "Lear," the doctor is an expert alienist and neurologist, and manages the case of the demented monarch with such tenderness and skill as to earn the gratitude of the devoted Cordelia. In "Macbeth," the physician who is called upon to attend Lady Macbeth in her mental collapse following the murder of "the unguarded Duncan," proves himself at once a shrewd Scotchman and a tactful practitioner. Before he undertakes "to minister to a mind diseased" or "pluck from the brain a rooted sorrow," he cautiously finds out from her gentlewoman-in-waiting the exact condition of his royal patient, and honestly admits "she more needs the divine than the physician" to soothe her distressed conscience; that her disease is beyond his practice, and after giving her attendants some good advice to watch her carefully and "remove from her the means of all annoyance," he prudently withdraws. Later, when Macbeth asks him "What rhubarb, senna or what purgative drugs would scour these English hence?" he answers with that caution so characteristic of his race, "Were I from Dunsinane away and clear, profit again should hardly draw me here."

Of surgeons as distinguished fro mphysicians, Shakespeare did not have a high esteem. In his day the art of surgery was in the hands of the barbers, and the evolution of the surgeon was a tedious process. It was only in 1635 that Charles I repealed the law which forbade a surgeon to trepan the head, open the chest or belly, or cut for the stone but in the presence of a learned physician. Millingen (quoted by Bucknill) explains the origin of the barber surgeons from the decadence of medical practice amongst the clergy. He says that in 1163, at the council of Tours, Pope Alexander III prohibited the study of medicine and of law amongst all who had taken religious orders, hence the practice of shaving, bleeding and teeth-drawing was delegated to the barbers because of their familiarity with cutting instruments. The barbers and surgeons were finally duly incorporated by Henry VIII in 1518. The apothecary and his calling were contemptuously described by the dramatist in the familiar lines from "Romeo and Juliet" (Act v, scene 1):

"Meagre were his looks, sharp misery had
 worn him to the bone,
And in his needy shop a tortoise hung,
An alligator stuff'd; and about his shelves
A beggarly account of empty boxes
Were thinly scattered to make up a show."

The allusions to diseases and ailments in Shakespeare's plays are so numerous that the pleasing task of quoting them would require an amount of space far beyond that allotted to me, so I will content myself with bringing to the notice of my readers a few of the more interesting. Bucknill has also written a most entertaining book on "The Mad Folk of Shakespeare," in which he has with rare skill analyzed from the standpoint of the alienist and neurologist the mental characteristics of "Hamlet," "Lear," "Ophelia" and "Lady Macbeth." In this work will be found much psychologic information of extreme interest to the medical student of Shakespeare, to whom I cordially recommend its perusal.

Regarding the true nature of the circulation of the blood the great dramatist was without accurate knowledge, for it was not until 1616 (the year of his death) that Harvey gave his immortal discovery to the world. There are, however, many references to this subject in Shakespeare's plays which show that he was well informed about the functions of the heart and arteries as understood by the best medical authorities of his time. For instance, in Julius Cæsar (Act ii, scene 1), Brutus uses the remarkable expression:

"You are my true and honorable wife,
As dear to me as are the ruddy drops
That visit my sad heart."

These lines formed the basis of an essay in the second volume of the Shakespeare Society's papers, in which the author sought to prove that Shakespeare was informed by Harvey himself of his great theory about 1603—the year in which the play was written—but there is no proof that the dramatist had any acquaintance with Harvey, who at that time was studying anatomy and physiology at the University of Padua. In many of the plays, notably in "Love's Labor Lost" and "Henry IV," are found allusions to the Galenical doctrine, that the arteries contained not blood but air or "nimble spirits." The position of the heart in the thorax is described in "Mid Summer Night's Dream," (Act v, scene 1.):

"Our sword and wound the pap of Pyramus,
Ay, that left pap wherein the heart doth flop."

A familiar allusion to cardiac palpitation resulting from nervous excitement is of interest by reason of its quotation by the late Dr. J. M. DaCosta, of this city;

"His hand, that yet remains upon her breast,
(Rude ram to batter such an ivory wall),
May feel her heart, poor citizen distressed,
Wounding itself to death rise up and fall
Beating her bulk, that his hand shakes withal."

(Rape of Lucrece.)

In "Twelfth Night" (Act ii, scene 4) anemia is described as "a worm i' the bud," which fed on Viola's "damask cheek" with "a green and yellow melancholy." The effect of wine upon the liver and the influence of the emotions in the production of jaundice are faithfully shown in the following lines from the "Merchant of Venice" (Act i, scene 2):

"And let my liver rather heat with wine,
Than my heart cool with mortifying groans,
* * * and creep into the jaundice by being peevish."

Again, in "Troilus and Cressida," "What grief hath set the jaundice on your cheeks?" (Act i, scene 3.)

Old Adam in "As You Like It" (Act ii, scene 3) ascribes his hearty old age to his youthful temperance and chastity.

"Though I look old, yet I am strong and lusty,
For in my youth I never did apply
Hot and rebellious liquors in my blood
Nor did I with unbashful forehead woo
The means of weakness and debility.
Therefore my age is as a hoary winter—
Frosty but kindly."

The change of voice with old age is noted by Jacques in "As You Like It" (Act ii, scene 7):

"And his big manly voice, turning again toward childish treble—
Pipes and whistles in his sound."

Fistula forms the basis of the plot of "All's Well that Ends Well." In Shakespeare's time the word fistula meant any discharging sinus, and was applied by him to an abscess of the chest wall from which the King of France suffered. Helena, daughter of Gerard of Narbon, a famous physician, was in love with Bertram, a courtier, but he did not return her tender passion. Her father having left her a secret remedy for the cure of fistula—"the dearest issue of his practice"—she conceived the plan of curing the King of his malady, in the hope that as a reward for her success he would give her the husband of her choice. The King was sceptical, saying that "our most learned doctors and the congregated colleges have concluded that laboring art can never ransom nature from her inaidable estate," and furthermore "that we must not prostitute our past cure malady to empirics." Finally he yields to her beauty and importunities with the result that he is cured and Helena receives her promised reward. (Act ii, scene 1.)

Many allusions to syphilis and its consequences are found in Shakespeare's works. The expression "French crown," a slang term for the "Corona Veneris," is repeatedly used. In "Mid Summer Night's Dream," Quince says to Nick Bottom, "Some of your French crowns have no hair at all." A similar reference is found in "All's Well that Ends Well." The fearful imprecation addressed by Timon of Athens to the courtesans, gives many of the secondary and tertiary effects of syphilis.

"Crack the lawyer's voice
That he may never more false title plead
Nor sound his quillets shrilly.
. . . . Down with the nose,
Down with it flat; that his particular to foresee
Smells from the general weal—
Make curl'd pated ruffians bald:
And let the unscarred braggarts of the war
Derive some pain from you. Plague all
That your activity may defeat and quell
The source of all erection."
—(Act iv, scene 3.)

The merciful law that an unborn child is innocent of the guilt of its mother, and that a woman in pregnancy under sentence of death cannot be executed until after her baby is born, is beautifully illustrated in "The Winter's Tale" (Act ii, scene 2), when the accused queen has given birth to a child in prison. Paulina demands it from the jailor on the grounds that "the child was prisoner in the womb and is not a party to the anger of the king, nor guilty of, if any be, the trespass of the queen." Again in Henry VI (Act v, scene 4), when Joan of Arc is about to be burned at the stake as a sorceress, she demands a reprieve and implores her captors to "murder not the fruit within my womb, although ye hale me to a violent death."

The operation of Cesarean section has two notable illustrations in Shakespeare's plays. Once in "Macbeth" (Act v, scene 7), when Macduff tells the distracted king that he was "untimely ripped from his mother's womb," and in "Cymbeline," when the mother, in the vision scene, declares that Posthumous was from her "ripped" and "came crying amongst his foes—a thing of pity." (Act v, scene 4.)

In "Macbeth" (Act v, scene 7), the king's evil and its cure by royal touch is described by the English doctor, who has in readiness for the king "a crowd of strangely visited people, all swollen and ulcerous—the mere despair of surgery." It is noteworthy that this ancient superstition continued in England at least until the time of Dr. Samuel Johnson "who was touched for the evil" but without success. An interesting reference to goiter and its prevalence in those who dwell in mountain regions, will be found in "The Tempest" (Act iii, scene 3), where Gonzalo declares "There were mountaineers dewlapp'd like bulls, whose throats had hanging at them wallets of flesh."

A remarkable description of approaching dissolution is given by Dame Quickly in her account of the death of Falstaff from a "burning quotidian tertian" (Henry V. Act v, scene 3). She tells how she "saw him fumble with the sheets and play with the flowers and smile upon his finger ends that his nose was as sharp as a pen that he bade me lay more clothes on his feet and they were cold as any stone, and then I felt to his knees and so upward and upward and all were cold as any stone."

Macbeth's expression "Throw physic to the dogs" has oft been quoted as an illustration of Shakespeare's contempt for the art of medicine; but this opinion has been refuted throughout the plays by the respectful way in which the immortal bard refers to its exponents and their teachings. While he portrayed the starved apothecary in "Romeo and Juliet"; the supercilious Dr. Caius in "The Merry Wives of Windsor" and the courtier, Dr. Butts in "Henry VIII," he also sketched with matchless skill in "King Lear" and "Macbeth"—physicians who are types of all that is best in medical ethics.

* *

VITAL FORCE A FORM OF ELECTRICITY.

By T. W. Topham, M.D.,
Brooklyn, N. Y.

In answer to your editor's request I give you briefly and imperfectly the result of my efforts to demonstrate that therapeutic electricity properly alternated and controlled, can be made to add force and vigor to human life through the avenue of the nervous system. Clinical results so freely cited in behalf of any measure often seem insufficient to prove any pathologic conclusion, on account of the many possible factors that usually enter into the cure of any form of disease. Empirical knowledge, per se, rarely satisfies any one but the observer, and in order to demonstrate that the vital force of the human organism can be augmented by artificial means, I submit the following description of two methods that I have devised for the purpose of estimating or measuring it. After a number of discouraging failures my first success consisted in producing an instrument that measures the number of volts that will naturally pass over any nerve or system of nerves in the body. This was a step towards the goal, but was not yet satisfactory. I next succeeded in devising an instrument that will not only measure the quantity of vital force in the human body, but also demonstrates that nervous energy is an electromotive force and obeys the general laws that govern electricity.

It also shows that there is a varying amount of electric energy in different substances and in some none at all, notably among which I may mention distilled water and alcohol.

When I discovered that vital force is amenable to the laws governing the electric current, I inferred that it must necessarily be generated in an acid medium, so, I had made of hard rubber a small electric battery, and attached to its two elements fine insulated wires. These I encased in a small flexible rubber tube, about five feet long. The outer ends of these wires I connected to the instrument which for convenience I will call a "vitality meter" and then slowly passed the miniature battery down into my stomach. Scarcely had it reached the fundus when the registering needle of the meter swung to the extreme limit of the dial. I was astonished at this apparent exhibition of electric energy, and, to corroborate the test, carefully withdrew the battery, washed it in distilled water, and a second time lowered it into my stomach, with precisely the same result. The only sensation I felt during the process was a peculiar feeling of warmth, which soon disappeared after the battery was withdrawn. The result of these experiments, which have been many times repeated, to my mind clearly prove, first, that vital energy is an electric force, and that it is generated in the stomach and not in the brain as we have all along been taught. So I feel justified in concluding that the stomach answers to or is the actual dynamo whose evolved energy is merely stored within the brain, thence to be distributed throughout the system as needed. Further than this, the convolutions of the brain may be said to bear a certain resemblance to the ordinary form of the storage battery, which heightens the analogy and tends to corroborate my assumption.

DESCRIPTION.

The meter that scientifically estimates the inherent vital force of the human system is of the most delicate construction imaginable. It is so sensitive that a person approaching it with any metallic substance about his person, will cause the needle to be immediately deflected. To avoid this, I found it necessary to balance the needle between the two poles of a permanent magnet, sufficiently strong to overcome all extraneous magnetic influences.

A needle or pointer is attached to a pinion that is carefully suspended between two fine jewels. Connected with this, there are two electro magnets each wound with the finest (smallest) insulated wire that could be procured. This instrument does not contain a battery of any kind, and the only current it receives is from the body of the person or of other material in contact with its terminals.

WHAT IT WILL DO.

One of its peculiarities is, that it will instantly detect the difference in polarity between the right and left hand, and will therefore, incidentally, tell whether a person is left handed or not! It will indicate approximately the degree of "insensible emanation," or, in other words, the amount of personal magnetism that is being given off by the body.

In fact this meter discloses many curious facts in connection with vital force. I observed that the registering needle would always vibrate to the same place on the dial each time the individual was tested. But what astonished me in the beginning, although now readily understood, was that I frequently found a marked difference in the degree registered by two people of about the same age and apparently in the same physical condition.

At first, I thought this might possibly be due to an acid condition of the skin at the point of contact, but careful investigation disclosed the fact that the difference was due to the greater afflux or efflux of animal magnetism from different subjects. As the only possible explanation, I concluded that one person is more than ordinarily self-contained, or of a positive disposition, as indicated by the abundance of electro-motive force within him, as accurately registered by the meter.

On the other hand, the more free, open, unreserved and generous a subject is, his general health being the same, the less electric force he holds in reserve, miser-like, as indicated by this meter. The first condition has, in electrical parlance, a high tension or voltage, with a low amperage, a storage battery of reserve; while the other gives so freely to the world about him, that his is a low tension or voltage as registered by the instrument, and this result is strictly in accordance with demonstrated electrical law.

With the ability to measure the amount of vital force present in any human body at a given time, and the discovery that this force is a form of electricity that is subject to the general laws governing both the commercial and therapeutic currents where shall we stop? It is a generally acknowledged fact that the physical health and moral disposition of a person govern both the quality and quantity of his magnetic emanations. This instrument, I firmly believe, faithfully records the quantity if not the quality of the magnetic force and so we are able to approximately measure an individual's health and possibly to some extent his disposition or moral temperament by an electric meter.

Among my several unsuccessful attempts to accomplish the above results, I produced a meter that will accurately measure the number of volts of the ordinary street current, or of any similar current, that will naturally pass over the course of a nerve or any system of nerves. A notably strange thing connected with it is that I find a remarkable difference in the conductility of the nerves in different people of about the same age. In searching for the cause of this difference I invariably found a condition of physical depression, due to unusual worry, disease, or fast living, associated with every subject whose nerves indicated less than a normal degree of electric conductility. I have been able to show that when a subject's nerves are in a normal condition, they are good conductors of the electric current, but when they have deteriorated, or become calcified by old age, fast living or otherwise, they are less so. This fact explains why the old man totters and is so uncertain on his feet, for it shows that the lines of communication between his mind and his muscles have become impaired and that he no longer has the prompt balancing power he possessed in youth. Of course a lessened conductility of the nervous system involves and affects the nourishment of the entire body, consequently the functions of life are carried on less rapidly and with less vigor than formerly, which, in the absence of an improved condition more or less directly presages premature death. In this nerve-meter we have an instrument by which we can accurately arrive at the inherent or immediate condition of a person's nervous system, and which practically means that we can tell with an approximate degree of certainty how long—barring accidents—such individual will live, taking into account his present condition and habits of life. While its sphere of usefulness has not yet been fully determined, it bids fair to become of great value to those who are specially interested in the question of longevity. When a definite and satisfactory system of comparison has been established it may be that we can predict the probability of an individual's life, under its existing conditions, as to years, at least, if not to months or even weeks. The corresponding relationship between the conductility of a subject's nerves and the general nourishment of the body is, no doubt, definite and absolute. So that it will not be difficult to arrive at definite conclusions when a real or normal standard of comparison has once been established.

354 Schermerhorn Street.

THE MEDICAL MANAGEMENT OF APPENDICITIS.

By J. W. Irwin, M.D.,
Louisville, Ky.

The management of appendicitis requires on the part of the medical attendant an accurate knowledge of the anatomy of the appendix vermiformis ceci and the cecum itself. Special attention should be paid to the small opening from the cecum into the appendix, which is sometimes partly closed by a fold of the mucous membrane known as Gerlach's valve. There is no anatomical difference in the structure of the appendix and the cecum, except perhaps a greater number of glands in the former.

The appendix is made up of four coats, usually a single artery, a vein, nerves, and lymphatics, and it is three or four inches in length, and about the size of a pipe-stem. Its uses in man are not clear, and it is sometimes absent. Darwin, in his work on "The Descent of Man," refers to it as the useless rudiment of the cecum. Its absence in the orang-outang and wombat has left a hiatus between monkey and man in the story of evolution.

Haeckel refers to the appendix, in his work on "The Evolution of Man," as a "rudimentary organ" which, in our plant-eating ancestors, was large and of physiologic value.

The cecum in man is about two and one half inches in length, but in some of the lower animals it is several feet in length. An instance of its great size will be found in the marsupial kaola. This little animal is about two feet in length, and its cecum is upward of six feet in length.

Before Reginald Fitz, of Boston, in 1886, called attention to appendicular disease and advised for its cure the early removal of the appendix, disorders in and about the caput coli were generally diagnosticated and treated as typhlitis and perityphlitis, but since his observations were published, and those of McBurney, which appeared five years later, abdominal surgeons have sprung into existence everywhere and with great rapidity, to meet and contend with the ravages of a disorder which is not new and not very fatal, while typhlitis and perityphilitis are lost sight of.

It may be said that many people are alarmed by reason of the numerous hospital and private reports of appendicular diseases which appear in the newspapers; everything in the form of colic causes a fear akin to madness that the dread disease has seized them. The surgeon in such cases, though he be a mere tyro, finds willing subjects when he offers with an easy facility to open the abdomen and make the cure. If the patient survives the operation, it was timely and a great success; but, should a fatal result follow, we hear of the successful 'operation and at any rate that the surgeon was summoned too late. Surgeons are never summoned to a case too early, although some advocate early and others late operations in appendicular diseases, as the character of the affection appears to them. The family physician or general practitioner responds to a summons to a case uncomplainingly at any time, no matter what stage the disease has reached. It is a well-known fact that the mortality of appendicitis when treated medically does not exceed ten per cent., while surgical treatment shows a far greater death rate.

In the treatment of appendicular diseases the surgeon and physician should come to a happy medium, as extremes in any direction are usually wrong procedures. Every case should be studied and treated on its merits according to the best information afforded. Fulminant cases are not good ones to treat from either the surgical or the medical point of view, no matter how early the diagnosis is made out, for serious involvement of important tissue often precedes the leading symptoms of the disease. At the outset of the attack, pain is not always localized in the right lower quarter of the abdomen, and although it may later centre there at or near McBurney's point in four-fifths of the cases, in the other fifth it will be more intense elsewhere. The symptom complex in all cases must be considered before reaching a conclusion sufficiently accurate to justify an exploratory incision even in the fulminant or most severe form of the disease.

Every grade of inflammation of the appendix vermiformis ceci, from the mildest catarrhal affection of its mucous lining to the most severe phlegmonous disorder of all its coats, resulting in gangrene and perforation, may be met with. The attack may come on suddenly and the suffering be intense from the beginning; even signs of fast-approaching dissolution may be present, or the symptoms may at first be mild, and several days may elapse before enough evidence of the disease is established to justify the diagnosis. The differential diagnosis from typhlitis and perityphlitis should not be lost sight of, and this is of especial interest in the absence of a tumor in the appendicular region. Impaction of the colon and cecum is suggestive. When it is remembered that inflammation of the cecum may extend to the appendix by continuity of surface, the early diagnosis of cecitis is important.

When it is reasonably apparent that the patient is suffering from appendicitis, as indicated by pain in the lower right quarter of the abdomen, with or without a tumor or fever, and contraction of the rectus abdominis muscle, he should be put to rest and the importance of rest should be made clear to him. The bowels should be thoroughly emptied by a large dose of castor oil, and, if necessary, colon enemata should be administered. All gases and offending substances should be removed.

Diet is of great importance. At first it should consist of nothing more than strained soups, consomme, or bouillon. If milk is given it should first be peptonized. Later, food that digests readily in the stomach may be given. All articles of diet that tend to increase fermentation should be avoided.

Pain should be relieved by the application of ice poultices, or the hot water bag, as may prove to be the most agreeable to the patient. In no event should opium or its derivatives be employed until other means have failed to afford relief. The bowels should be kept free from gas by the use of enemata, or, if need be, laxatives, such as castor oil, magnesia, or cascara, may be used. An occasional laxative dose of calomel will do no harm.

It should be remembered that appendicitis, like all other inflammations, tends to resolution by the *vis medicatrix naturæ* and, if we can aid the efforts of nature, the result will be satisfactory in nearly every case.

Should local applications fail to relieve the pain, antipyrin or phenacetin should be given. The slight fever which is usually present will also be relieved by the use of these remedies. One-fourth or one-half grain doses of calomel should be given every third hour. As the fever, pain and swelling subside, the calomel may be discontinued and some preparation of iodine may be given. The syrup of hydriodic acid in drachm doses may be given every four hours, or the iodide of potash in ten to twenty grain doses every fourth hour may be given. Later in the course of convalescence, syrup of iodide of iron may be indicated. In several instances I have obtained good results from the use of salol or salicylate of soda four drachms daily for the first day or extent of one drachm a day, or silicylate of soda four drachms daily for the first day or two. The patient should be kept in bed and at rest until all symptoms of pain and tumor, if one should be detected, have disappeared. The steady use of alteratives for several weeks after the patient is well enough to resume his former habits will tend to prevent relapses.

In the fulminant form of appendicitis, surgery resorted to early would appear to offer the best results. When abscesses form at any stage of the disease, they should be evacuated; but it should also be remembered that when abscesses form within the appendix there is a likelihood of their rupturing and emptying into the cecum, as the mucous lining of the appendix is less resistant than its cellular and muscular coats. In the recurring form of appendicitis, the best time for operation would be between the attacks. It should also be remembered that it is often hard to differentiate between the various forms of appendicitis, and on this account many cases have been subjected to surgical treatment that would no doubt have gotten well without it.

During the last twenty-nine years I have seen and treated upward of one hundred and fifty primary cases of what was then known as perityphlitis, later and now appendicitis, without having to resort to surgical means, and have had to record but two relapses, both patients surviving, and a single death.

Death came in the one case near the end of the second week of the disease in a gentleman forty-six years of age, who was also the subject of heart trouble, the result of years of dissipation.

I believe that overeating, fatigue and catarrhal causes conduce to appendicitis in the great majority of cases.

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TOOK OFF HIS GLASSES.

A New Hampshire physician sends us the following about his cat:

"Among other queer tricks Dick will take off my glasses very carefully with his paw, hold them with one paw and survey them with great apparent interest.

"The first time he did this was one night when he had been napping and I reading. He is a great pet, and going to him I bent over, without indicating by any motion my meaning, and said gently: 'Dick, if you want to go to bed, take off my glasses.'

"He immediately reached up a paw and took them off as deftly as though it was an old habit. Thinking this a 'happen so,' I put them on and made the same request in different words, with precisely the same result. After one more repetition he yawned and plainly intimated that was enough."—*Philadelphia Times.*

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Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise." —*TISSOT.*

Edited by G. H. PATCHEN, M.D.

THE NEW YORK MEDICAL GYMNASTIC AND MASSAGE SOCIETY.

REPORTED BY THE SECRETARY.

AT the November meeting, after the business of the meeting had been transacted, the question "What is understood by general treatment, and what is the proper length of time for applying it," was generally discussed. Mr. Albert Langner spoke as follows:

"I understand by the expression 'general massage' the treatment by massage of the whole body.

"Sitting at the right side of the patient I commence with the right foot and manipulate on the leg upward; then on the left leg, according to the constitution, for about 10 minutes on a patient of 150 to 170 pounds. Next comes the abdomen and the chest, with a special consideration of the colon decendens for another 10 minutes. On the arms I work about five minutes each.

"Turning the patient over, I knead the neck and the back for 10 minutes, and finish with the legs from the posterior side within another five minutes.

"I use no lubricant except in cases of a very dry epidermis. The manipulations consist of effleurage and petrissage (stroking and kneading), and of tapotement (muscle beating) only when absolutely necessary. Special attention has to be given to the lymphatics. In cases of a pronounced emaciation the manipulating consists in a gentle rolling of the epidermis between the fingers, or in light friction with the palms.

"The best time is before meals or one hour and a half after a meal.

"The temperature in the room must be about 72° F., and only the treated part of the body is exposed."

Miss Anna Schultz said: "My idea of the term 'general massage' is a treatment over the entire body of the patient.

"I generally commence with effleurage, then petrissage, then again effleurage followed by a few passive and active movements of the extremities.

"First, manipulation of the upper, then the lower extremities; then the chest and abdomen; lastly the back.

"I consider 45 minutes to one hour sufficient time under ordinary circumstances."

Jacob Bolin said: "'General treatment' is to me synonymous with 'constitutional treatment,' as opposed to 'local' or 'organic' treatment. It may consist of only massage, only gymnastics (passive, active or resistive) or be of a mixed character. It addresses itself to the general nutritive functions, as distinct from local lesions or deformity. I therefore use it:

"(1) In general mal-nutritive conditions: Anemia, rheumatism, gout, obesity, rhachitis, neurasthenia, chorea, convalescence after exhaustive diseases, and so on.

"(2) As the main remedy in local disturbances, the cause of which is of a general rather than of a local nature: Constipation from inactivity, enteroptosis, from erroneous postures, neuritis from intoxications, delayed union in fractures, and so on.

"(3) As an adjuvant in numerous local affections where, perhaps, the general condition may not be considered as the immediate cause, but as a powerful preventative to a complete cure: Scoliosis, flat feet convalescence in tubercular joint affections, etc.

"In brief, I always use the general, constitutional treatment if time and other conditions allow it, except in such cases where the general nutritive conditions are exceptionally good, *e.g.,* in the traumatisms of athletes. The local treatment is, to me, in most cases, rather an incident in the general program, which may be explained by the fact that I deal chiefly with chronic conditions which, even if local in appearance, are for the most part mere manifestations of a general decadence of the whole system. That the local treatment frequently is the kernel around which all the rest of the program centers, goes without saying. The general routine that I follow is essentially the one habitually employed by the Swedish gymnasts in general, viz.: (1) respiratory movement; (2) passive leg movement or manipulation; (3) active or resistive leg movement; (4) passive arm movement or manipulation; (5) active arm movement; (6) a general trunk movement, frequently a circumduction; (7) manipulations of the back; (8) active movement for the back; (9) abdominal massage; (10) active contraction of the abdominal wall; (11) active leg movement; (12) respiratory movement. To elaborate the reasons for this sequence in preference to any other, would carry me too far."

At the meeting on the 6th of December there were present Miss Schultz, Mrs. Barclay, Mr. Oye, Mr. Bolin, Mr. Langner, Dr. Thompson, Dr. Barclay, Dr. Patchen, Dr. Satterthwaite, of the advisory board of the society, and a number of invited guests. The minutes were read and approved. It was moved and carried, that the regular order of business be postponed, that Dr. Satterthwaite might have time to read his paper entitled *"The Nauheim Method in Chronic Heart Disease with American Adaptations."* The Doctor's excellent paper was listened to with much interest, and was heartily applauded.

A spirited discussion then followed, principally concerning the advisability of employing abdominal massage in these cases, and also in regard to the technique of some of the "movements" recommended; Mr. Bolin, Dr. Thompson, Dr. Barclay, and Dr. Patchen taking part in it. After the discussion a vote of thanks was tendered Dr. Satterthwaite.

Nomination of officers for the ensuing year then took place, with the following result: Dr. Barclay was renominated as a member of the committee on admissions; Messrs. Oye and Bolin as members of the literary committee.

The committee on admissions presented the names of Miss Marie Nielson, Miss Hattie Kaiser, and Miss Pring for membership in the society. They were unanimously elected. The meeting then adjourned to Jan. 3, 1903.

After the regular order of business at this meeting, there was a discussion of the question, "When should Swedish movements be used in connection with massage." A brief report of the remarks made were as follows:

Mr. Langner would use both in almost every case, with the exception of cases of great debility, extreme anemia, emaciation and insomnia. In these cases, would use massage alone.

Miss Schultz said she employs both massage and exercises, almost always one-third of an hour for massage, and two-thirds for exercise.

Miss Nielsen uses both. Very seldom uses massage alone, except under the physician's direction.

Mrs. Barclay seldom treats a case where exercise or massage is used alone. When, on account of great weakness, active exercises are not desirable, passive movements, respiratory and others are always of benefit.

Dr. Thompson thinks that we must be governed by the stage of the disease, beginning with massage alone, then as the patient is improving, applying both, and finally, applying exercises alone.

Mr. Niederee would give no exercises for lumbago. Agrees otherwise with the opinion expressed by Dr. Thompson.

Dr. Barclay believed the question would be easier to answer if negatively stated, and the order of the processes reversed; as "When should exercise and massage *not* be used together." He would say, that exercise would be contraindicated in cases where movements would give rise to spasmodic contraction of muscles, as in certain forms of neuritis and rheumatism. Where this is not the case, passive movements can always be employed with benefit. Active exercises should be added according to the patient's strength.

In cases where massage is not actually needed as, for example, in corrective exercises massage can do nothing but good and should always be used when necessary, to tone up weak, stretched-out or contracted muscles.

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WHAT SHALL I DO TO GET WELL?

THIS simple question has been a riddle of the ages. Every generation has, in turn, tried to give a satisfactory and practical answer, but with so little success that it is still asked with as much frequency, earnestness and apprehension as ever.

And what of the answers given to-day? Are they any more positive, unanimous and assuring than heretofore? Does the advice they contain, when implicitly followed, give any more satisfactory results?

If, as I believe, these questions can be truthfully answered in the affirmative, then it may be said that we have made substantial progress toward the solution of a question of universal interest.

If we ask science to answer these questions for us she replies with sphinx-like dignity, but without hesitation: "It is now positively known that the health of every individual is in his own keeping, and is the result of obedience to the laws of his being. Disease, in whatever form it may appear, is the penalty mercilessly exacted for violation of these laws, and is, therefore not only avoidable but inexcusable. When from accident or uncontrollable environment, disease appears in any part of the body, its removal, if at all possible, can always be accomplished by the use of the same means, properly modified, which are necessary to maintain and promote the health of those who are already well."

When we compare this answer with that given and accepted a generation ago, we cannot fail to see that real progress has been made. It has consisted, for the most part, however, in the discovery of facts concerning disease and its relations to health. But in regard to what are the best remedies for its removal, there is, if we are to judge by the numerous methods of cure which, on all sides, are clamoring for recognition and support, still as much diversity of opinion as existed when both the cause and nature of disease was simply guessed at.

We have arrived at an interesting and critical stage of progress in the science and art of healing. We know that all attempts to cure disease by treating it directly as an entity are neither scientific nor successful; we are convinced of the utter absurdity of trying to restore health by using as a remedy anything which will derange physiological action, or lessen the general vitality; we are satisfied that all therapeutic endeavor should consist of only such means and measures as are known to be compatible with the laws by which the health of those already well is regulated and maintained.

But right here a serious difficulty confronts us. We are grossly ignorant of the most essential features of these laws. Our knowledge of them is so superficial and fragmentary that even the wisest among us

—those whom we accept as teachers—differ widely, both in their interpretation, and their remedial application.

To the individual seeker after health this diversity, both of theory and practice, is confusing and discouraging. But he need not despair, for he possesses within himself the very healing power upon which every physician depends, no matter what special form of treatment he may prescribe. Indeed, so great is this healing power that, unaided, except by favorable hygienic surroundings, it will cure nearly every disease which flesh is heir to.

Possessed of such a talisman no invalid need fear that his is immunest and certain, because there are so many different methods of cure, each professing to be the best, and all so anxious to relieve him of his suffering and—his money, that he cannot choose between them. His anxiety and apprehension will be relieved if he will bear in mind the fact that, at the present time good hygiene is both the foundation and cornerstone of every system of cure, and that with the exception of those which make use of drugs and the knife, none of the means they employ, even if injudiciously administered, can produce any really serious or injurious effect.

Another important fact which will become apparent by observation is, that of these many systems, the most successful in practice are those which most closely and most exclusively adhere to *all* of the demands which hygiène exacts from every department of the body.

The plain duty of the invalid is to cultivate and call forth the healing power within him by every possible means which hygiene can suggest and afford. How this can be done to the best advantage and in the most practical way must form the theme of a separate article.

* *

INTEREST IN RELATION TO MUSCULAR EXERCISE.

By Luther Gulick, M.D.

The standpoints from which we discuss Physical training may be classified into three groups—physical, psychological, and sociological—as shown on the diagram:

Standpoints from which to view Physical Exercise.

1. Anatomical 2. Physiological 3. Neurological	Physical.
4. Intellectual 5. Emotional 6. Voluntary	Psychological.
7. Social traditions 8. Social feelings, etc.	Sociological.

In the physical group we may discuss exercise from the standpoint of anatomy,—its relations to structure of muscles and joints, the limitations and possibilities of movement incident to the nature of the structure itself, etc. Again, exercise may be discussed with reference to the functions of the various parts of the body,—the effects of exercise upon the functional capacity of muscles and joints, on gland and ligament. Or, in the third place, we may discuss the relation of exercise to the growth and the development of the nervous system. These all relate definitely to the physical.

In the psychological group we may discuss the relation of physical training to intellectual life. We may discuss the functions of the motor areas. We may attack the problem of motor thinking. This we will call the intellectual side. We may discuss, again, physical exercise from the standpoint of the emotions, and under this head we find the topic of the morning: "Interest in its relation to muscular movement." We might go on to discuss the relation of the great basic emotions of our race in the plays and games of our kind, and still be within the limitations of emotional aspects of muscular exercise. We might proceed to discuss exercise in its relation to the will. Thus, under the psychological division we should have three sub-headings,—the intellectual, the emotional, and the voluntary. Many sub-headings suggest themselves as being under the sociological division. We might discuss the propagation of plays from generation to generation in terms of social tradition. We might discuss the relation of coöperative play to the development of social feelings and to the development of coöperation, and thus be in the realm of social feelings.

Any scheme of physical exercise to be adequate and complete must meet the conditions incident to these various standpoints. Exercise must be suitable from the standpoint of anatomy; it must be in accordance with what we know of the laws of physiology and neurology; it must certainly be in accordance with the fundamental conditions of our intellectual, emotional and voluntary life, and, to be permanently effective, must meet the conditions of our social life. Any scheme of gymnastics or physical training built purely upon anatomical or physiological grounds must, in the nature of the case, ultimately yield to that work which is equally good from these physical standpoints, but which also reckons with the laws of the higher organism.

The question of the hour is as to why certain exercises are more interesting than are others. Why is it that, to the average boy, it is more interesting to throw a stone at a bottle floating in the water than it is to pull a chest weight? Why is it more interesting to run a race than it is to lie on the floor of one's bedroom and take deep breathing exercises?

Certain great coördinations of muscular activities with psychic states have arisen during the progress of the early ages of man's history. These coördinations are so consistent as to be uniformly interpreted among all intelligent beings. That contraction of the facial muscles that we commonly call a smile is so usually associated with pleasant psychic states that we almost invariably associate pleasant psychic states with a smile. Expressions of anger, of sorrow, of delight, and of love have a sufficiently well defined and recognized form of expression to justify us in assuming the existence of a more or less definite psychic state wherever we see these particular muscular coördinations. This physical expression is intelligible to children before language is understood or spoken; between races whose origin is so far removed from each other as to render not only speech but mode of thought different; and even, to some degree, between different species of animals. These expressions of emotion include the activity in a more or less definite form of most of the muscles of the body, for even the unstriped muscle fiber of the intestinal tract by its form of activity expresses emotional states. The activities of many glands are also expressive. Thought and emotion are expressed most delicately, so far as we ordinarily observe, with the face and hands, but even the great muscles of the spine are associated in their activity with emotional states. Discouragement is usually expressed by a slight bending of the spine forward, a drooping of the head, while joy and confidence are shown by the holding of the spine and the head erect.

We may not say that these emotional expressions are involved in the nature of emotion itself. They seem to have arisen at least partially by a utilitarian process. The expressions of fear in the individual are such as would help him to escape or to overcome the object feared. Fears tend to make us flee, or to remain absolutely motionless awaiting an avenue of escape, or to fight. We may fairly assume that fear has manifested itself in many individuals in other ways than these, but the constant operation of natural selection has tended to perpetuate those individuals in whom the manifestation of fear has taken forms that are useful to the organism. We do not mean that the activity of specific motor areas is of necessity associated with specific states of mind. The real association is a process of far greater complexity than this. For coördinations are made, sequences of movement are involved, that include sometimes the whole individual for complete expression.

Thus far we are on ground that will perhaps be generally conceded. There is another aspect of the matter about which not much has been said. These bodily activities tend to associate with themselves the psychic states which they usually represent. Thus, if one who through discouragement is walking along slowly with dejected attitude will stand erect, raising the head (drawing it backward), and step more rapidly, there will be found a tendency toward the improvement of the feelings. If one who is worried or excited, who is making the short, nervous movements characteristic of this state of mind, deliberately makes long, slow movements in walking or in speech, it is common to find a similar reflex effect.

These muscular coördinations that express emotion are acquired by the individual with great ease. We are not prepared to say that they come to the individual purely by growth without practice, but we are safe in saying that he develops them with exceptional ease. The organism inherits peculiar capacity and inclination towards these particular adjustments. The process of learning these expressions of emotion, most of which come during the early years of life, involves, we believe, little if any conscious effort. Indeed the conscious effort to express emotion may be in itself a large element in inhibiting the true expression of the emotion and the substitution for it of that which is recognized as imitation. We do not need to take sides in the Weisman controversy as to the origin of these instincts and tendencies. It might be true that our fathers have made these specific muscular coördinations so long that we inherit, so to speak, their habits, and thus easily make these adjustments. Or, we might say with the followers of Weisman that there has constantly been a process favoring the survival of those whose emotions were expressed in these useful ways. If by physical training we mean the conscious effort toward the complete development of the physical self, this matter of the ripening of the neuro-muscular apparatus that expresses emotion becomes a matter of the greatest concern. The significance of this with reference to physical training we must leave until later in this paper.

Not only, however, in the expression of emotion do we inherit from our ancestors the tendency toward definite muscular coördinations, for other coördinations as well are evidently racial in their origin. Let me illustrate this by a brief discussion of throwing. It is a matter of common observation that men ordinarily do not throw in the same way that women do. The current explanation is that the ligaments in a man's shoulder allow a larger freedom of movement than do those in the woman's shoulder, or that the muscles actuating the upper arm are arranged differently in the man, thus permitting a movement in the one that is not permitted in the other. In so far as there are differences in the shoulder joint between man and woman, these differences are in favor of the woman. The ligaments in the shoulder joint are not so short nor so strong in the woman as in the man. Thus the woman has greater freedom of movement in the shoulder than has the man. The origin and insertion of muscles of the shoulder is the same with the woman as with the man. Men throw with their left arms in the same way that women ordinarily throw with their right arms. No matter how much skill the man acquires with his left arm, the character of the throw usually remains essentially like that of the woman. I have seen a man who could throw 250 feet with his left arm and as accurately as with his right arm. He was naturally right-handed, but his right arm had been injured. In order to continue to play first base on his college team, he learned to throw with his left arm. His left-arm throw, however, remained the woman's throw. Thus we see that the cause of the difference cannot be due to muscular or ligamentous differences between man and woman.

Let us now endeavor to find an explanation in the history of man's development. During the earlier ages of evolution, man's capacity to hunt and fight were large elements in determining his fitness to live. They were far larger elements in his life than the same capacity in the life of woman. The capacity to produce and care for young seems to be basal to the female corresponding thus to the capacity of the male to hunt and to fight. During these early times those having the capacity to use clubs as weapons and to throw stones as weapons was important. The individual who possessed the capacity to throw the hardest and straightest would stand the best chance to overcome enemies and to kill game. The same may be said in regard to the use of the club. The man who could strike with the greatest speed and accuracy would stand a better chance of survival than his antagonist or competitor. Thus the succeeding ages of prehistoric times operated toward the constant selection of those who had in the largest degree this capacity to throw and to strike. This specific selection, however, would be constantly on the male side. The female was, during these same ages, being selected for survival mostly with reference to the domestic instincts. Thus there have arisen divergent emphases in the two sexes upon muscular coördinations. We are the descendants of those men who could throw and could strike, and of those women who loved children. Thus boys turn with ease to games involving throwing and striking, while girls' games emphasize more the rehearsal of domestic activities.

We should expect, in accordance with this theory, that occasionally there would be women who would inherit the distinctly masculine habit of throwing. This we observe to be the case. I have seen one little girl five years old who threw with a perfectly masculine swing. On the other hand, we should expect occasionally to find men who could not throw in the man's way. This also we find to be the case. We should also expect sometimes to find the neural throwing mechanism perfect on both sides of the body, in which case the individual will be able to throw with either arm. This also we have seen. Two brothers were at the same time pitchers on two teams, one in college and one in the high school. Each of them could throw hard and straight with either hand. It is said by some that this matter of throwing is purely a matter of training. I have seen little boys, three years of age, throw perfectly. On the other hand, I have worked with patience and persistence to teach girls to throw and have succeeded so far as a reasonable degree of accuracy and speed is concerned, but have never yet been able to achieve a genuine man's throw in girls. I do not mean to say that a woman cannot learn to throw. I do mean to say that a boy's neural mechanism is adjusted so that he learns to throw with much greater ease than does the usual girl.

If we view our nervous system, in the light of this illustration, as being more prone to organize with certain muscular coördinations than with others, I believe we shall see it in its true light. All these coördinations that have been of use in the history of the race come to us without difficulty. Where there has been a sex differentiation, as for instance in throwing, then the nervous system of each sex usually takes on its sex characteristics as truly and as differently as the body takes on its secondary external characteristics,—*e.g.*, hair on the face of the man. These racially developed tendencies toward definite neural organization include, as I have suggested, all those activities that are of fundamental and genetic importance. If we assume, as we certainly must in the light of modern neurology, that in the species intelligence has developed coördinately with the capacity for complicated muscular movement, we shall be prepared to admit that, in the somatic development of the individual, a rehearsal in these respects of philogenetic history is an essential element in the development of rationality. In other words, finding that intelligence has developed coördinately with certain great muscular coördinations, we must assume that as the individual develops intellingence, he can best do it, pari passu, with those muscular coördinations that have a racial setting. This, I take it, is one of the major ways in which physical training comes into relation with the development of mental activity.

This conception is basal to our idea of motor thinking. We do not think in terms of heterogeneous and unrelated motor activities. We think in terms of definite motor activities that have long been associated with more or less definite psychic states. The individual follows racial steps. To only a slight degree does he hew out new coördinations for himself. This conception of physical training as bringing to the individual capacity for those motor coördinations that have been basal in the life history of the species is, possibly, as new in theory as it is old in practice. If we study the spontaneous activity of the young of intelligent beings, we do not find them making all the muscular coördinations possible. We do not discover that every joint is being moved in every possible relation to every other joint. There is much experimentation, but the racially old is seized by the individual with ease and joy. The puppy plays in a way to make his life complete. This differentiates his play from that of the cat. Each rehearses his own racial history. It appears that this same kind of psychic accompaniment obtains in the individual as originally obtained when this motor reaction was being developed in the race. The hunting and fighting instincts appear to be dominant in most of the plays of boys, and the domestic in most of the plays of girls.

In the training of most individuals as done by nature we see the successive epochs of muscular achievement of the race mirrored with essential faithfulness coördinated step by step with the original psychic accompaniment. Physical education, then, from this view point, consists in giving to each individual in correct sequence those plays that will give him both the muscular coördinations toward which the organism is inclined and that emotional experience that makes toward full life and character. Adult complex coördination of muscle is not possible without the basal simpler coördinations that are learned early in life. So with the psychic life, the early psychic states must be thoroughly lived out in order that they may form the solid background of highly refined feeling and action. All movements may be studied with reference to their psychic content, as well as from other standpoints.

The great interest that centers about plays and games is at least partially because they are racially familiar; they have old coördinations. Fashions in games change, but they are only changes of form. They all depend on old notions and include only old neuro-muscular activities.

Let us turn now for a few moments to examining the chief forms of exercise taken by our kind,—football, baseball, hunting, fishing, racing, golf, tennis. These each represent certain muscular coördination. They are exceedingly old. Baseball is a complex of elements all of which date back certainly to our pre-human ancestry. The ability to throw a stone with accuracy and speed was at one time a turning factor in the struggle for survival. The non-throwers were largely eliminated at that stage in the world's evolution. Those who can throw and who are interested in throwing are left. The early man who could seize a bough of a tree and strike with accuracy and great power was better fitted to survive in the brutal struggle of those early days than the man not so endowed. He could defend his family better, he was better fitted for killing game, he was better fitted for overcoming his enemies. The ability to run and dodge with speed and endurance was also a basal factor. It was basal to hunting, it was basal to fighting, so that the runners have survived and the non-runners have been eliminated. Not merely those who can in times of stress carry on these activities with proficiency, but those whose interests have been connected with them have been the more fit to survive, because, by means of these preliminary exercises of the play activity, there has come a perfecting of the organism so that when the serious business of adult hunting and fighting has come, it has discovered a tried organism ready to do the work. So, great games have gradually grown during the development of our kind, from simple practice-throwing at a mark to the most modern form of baseball. Let not the comparatively recent date of the formulated game in its present form blind our eyes to the fact that in all countries of the world among rational human beings these games depending upon hard, straight throwing, rapid running, and accurate, hard hitting with a club are prominent. They tell of the early pre-human ancestral activity when life itself was dependent upon these abilities.

One of the figures at which I never cease to wonder, but which every summer appears in unceasing variety, is that of the fisherman—the intelligent, rational, city business man who, when he wishes rest and delight, will revert to the country, seat himself beside some convenient water, and fish. He may catch fish or he may not, but the long hours of the day will be spent in watching the line. The fishing is not done because the man needs the fish nor, so far as I can ascertain, for any reason which is related to the present environment, but because this fishing activity is built upon interests which date back to time immemorial. We are the descendants of fishermen. The delight in this form of activity may remain with us so long as life endures on the face of the world, because through the long ages the non-fishermen were eliminated. Early life was by the side of the water. Food supply was most readily secured and continual to the successful fisherman. The fisherman was more fitted to survive, and so the fishing interests dominate us even during these ages that are so far removed from that elementary time.

And so I might go through the whole catalogue of modern sports and show that they are built in the main upon these essential elements of which I have already spoken. The coördination of all the essential interests are old; the desire to beat, to win, is an old desire, and no amount of teaching that we shall love our neighbors and prefer them to ourselves succeeds in removing from the boy the desire to win at marbles or baseball, or takes away from him the keen fundamental delight in a hard fight.

Those of us who accept the general proposition that the abilities which have come to the race through the long ages of evolution are those upon which the character of the individual must fundamentally be built, will, I am sure, recognize the cogency of the argument that in the development of the boy those forms of activity are most important which relate to these old psychic interests. It is not enough that the muscles of the boy shall be developed. It is necessary that these muscles be coördinated in definite ways. DeLaspe was wholly off the track when he built a system of calisthenics upon all the possible combinations of the various joints of the body. Motor thinking and the development of rationality are not related to indiscriminate muscular activity, but are related to those forms of activity that have been basal in our kind. Exercises with the hands and with the face, with the tongue and with the lips, involve the activity of motor areas which have been associated with the development of intelligence; but we cannot believe that the training of the feet by juggling and in similar ways would conduce to the development of intelligence as does the training of the hand and eye. So that any plan of physical training which aims to be useful from the psychic standpoint must take into account not all possible muscular coördinations but those great basic activities which have always been associated in our time with the development of the rational life and the emotional life.

This view-point is presented as an important, although not as the only essential, one to take in the construction of curricula of neuro-muscular character in education.

I have endeavored to show

1. That there are relations between certain muscular contractions with definite emotional states, as well as the converse.

2. That we inherit, also, tendencies toward other muscular coördinations that have been of great racial utility.

3. That both these coördinations of muscle are acquired by the individual with great ease and joy.

4. That these racially old coördinations are basal in neural, rational and moral development.

5. That atheletic sports and games are chiefly composed of racially old elements.

6. Hence physical training should pay great attention to phylogenetic muscular history and chiefly emphasize racially old coördinations and interests.—*American Physical Educational Review.*

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EXERCISES FOR THE SICK.

Have you been ill and are you convalescing? Do you want to regain your wonted health speedily? Then practise physical culture for the sick.

Physical exercise for a man not yet out of bed, even though recovery from a prolonged illness has set it? Certainly; why not? Do not persons who are not sick abed take physical culture in order to secure better health, which is another way of saying, more strength? And as comparatively well men are made healthier by proper exercise, doesn't it stand to reason that exercises, devised especially for convalescents, will materially aid you in getting on your feet once more and the more quickly land you in your office?

Of necessity your blood has become sluggish while you languished in your illness; but now that the fever, or what not, has left you, and the doctor declares that you are on the high road to recovery, it is incumbent upon you to stir the blood in order that it may gradually bound through your body as was its wont, and furnish strengthening food to the tissues that have been wasted by disease and disuse. And you can do this expeditiously and without any danger of overexertion if you'll take physical culture exercises.

Of course, you must remember that you have been ill, in a sense are still ill, and you must be careful of what strength you have left. In other words, you must be extremely cautious not to overdo any of the exercises.

If, when you begin, you find that you are tired after performing one of the gentler exercises once, stop short right there. Do not think of exercising again until the next prescribed time for exercise comes around.

Then, if you are fagged after the second performance of an exercise, stop and lie down again. Likewise, when first starting, do the exercises with as little exertion as possible, and, as you find yourself becoming stronger, increase the energy that you put into them.

Do not be discouraged if you discover that you are able to do an exercise only once or twice before tiring. Even such seemingly insignificant exertion will be of great benefit.

Just one performance of an exercise will send a sick man's blood pounding along more rapidly—will quicken his breathing. Quickened breathing means more oxygen for the blood as it flows through the lungs, and the more oxygen from the air one can get into the system the sooner will health be recovered.

In order to get this highly necessary supply of oxygen, you should see to it that the sick room, which should be thoroughly ventilated at all times, has a bountiful supply of new air immediately prior to beginning the exercises. Physical culture taken in a room redolent with the contents of many medicine bottles is worse than no exercise.

The proper time to exercise? Either an hour before or an hour after each meal.

An hour before will give the blood plenty of time to quiet down and be ready to rush to the stomach to take up the task of digestion. An hour after will not interfere with the process of digestion by distributing the blood to the various parts of the body being exercised.

This rule should be rigidly observed, for, above all things, a convalescent needs to assimilate food properly so that he shall get all possible strength therefrom.

Also in order to reap the best possible results, you should approach the exercises in a spirit of pleasure, and not with the idea that they are drudgery. Recall your former healthy state. Say to yourself: "I wonder if I can do this or that as I used to;" and then take a curious delight in trying to do it.

If you can't execute the thing offhand don't let that give you the blues. Be cheerful in the thought that, maybe, you can do it all right next time.

And now to the exercises, constantly bearing in mind that you must stop the second you feel tired, even though you have scarcely begun one exercise.

Exercise I. It is a well-known physiological fact that when a healthy man lies down his lungs do not take in as much air as when he stands. Another axiom in physiology is that a sick person uses only about one-half of his lungs, often only one-third.

Therefore, when you find yourself convalescing, the first thing you should do is to develop your power of lung expansion, which illness has lessened. You should send fresh air to all the different parts of the lungs, and you can do it in this way:

Lie flat on your back in bed, with your body relaxed and at entire ease. Inhale all that you can, hold your breath as long as you can without becoming dizzy, and all the while tap gently over your chest with lightly clenched hands.

The tapping will loosen and make more pliable the lung tissues and thereby cause air to creep more easily throughout the lungs.

Exercise II. This exercise is splendid for stomach and abdomen. If your sickness has left you without relish for food it will give you a good appetite. If your appetite is well nigh voracious, as is frequently the case with convalescents, it will aid your digestion.

Get your wife, nurse, sweetheart, mother or daughter to place two pillows back of your head and shoulders. With legs straightened out, lie perfectly comfortable. With thumbs interlocked and the fingers of the right hand resting on those of the left, stretch your arms behind your head.

Then draw the arms forward, and, as you do so, sit up straight. At first bring the hands only to the knees, but as you gain strength try to reach the toes with the finger tips.

At first, also, hold on to the knee caps as you gradually lie down. When stronger you can try sitting up with the arms folded on your chest, and descend while in the same position, and you can also discard the pillows.

If you are very weak, you can do this exercise by drawing up the knees and, clasping the hands under them, pull yourself up to a sitting posture.

For a variation of this exercise, and for strengthening the side muscles of the abdomen, instead of the front and back muscles, as in the original exercise, hold your outstretched arms straight in front of your body on a level with the shoulders and have the palms touching.

Gradually describe the biggest possible arc that you can with your arms, always keeping them on a level with the shoulders. As you do so the body will be twisted sidewise at the abdomen.

As you become stronger twist the body of your own accord and keep the arms folded over the chest. If you find that it is too hard work to do the exercise with the arms outstretched, turn the body sidewise while holding to the sides of the bed with the hands.

Exercise III. Lie flat on your back, body comfortable and relaxed. Draw up the knees, keeping them together, to the point where they can be reached, without undue exertion by the hands. Also see that the feet are flat on the bed.

Then gradually let the knees fall apart as far as they will. Place the flat of the hands on the outside of the knees, and, with the legs entirely relaxed and offering no resistance, except their own weight, push them together.

As your accustomed vigor returns, resist with the knees while the hands are pushing them together. Exhale as the knees are brought together and inhale as the legs fall apart. This exercise is good for all the muscles along the inside of the arm, for many of the chest muscles and for the outside of the legs between the knees and hips.

In order to bring into play the muscles of the inside of the leg, the outside of the arm and the shoulders place the palms of the hands on the inside of each drawn-up knee. Pressing only with the palms and resisting with the legs, press the legs apart.

Inhale as the legs fall apart and exhale as they are coming together, in spite of resistance by the hands.

Exercise IV. Lie flat in bed on your back, with the body at perfect ease. Raise the arms straight up from the shoulders, at the same time raising the shoulders as much as you can.

Imagine that you are stretching your arms and shoulders in order to grasp a thousand-dollar gold certificate just suspended above your normal reach. This exercise is splendid for the shoulders and the side walls of the chest.

Exercise V. Lie flat on your back, hands under the hips and legs together all the way to the toes. Then raise the legs off the bed as high as you possibly can. Do not bend the legs.

Perhaps at first you will be able to raise the legs scarcely a foot, but even that will be of benefit, and after a while you will find that you can make a right angle with your body. This is excellent exercise for the abdominal muscles, from the groin up, and it strengthens weakened stomach and abdominal linings.

Exercise VI. While lying flat on your back, draw up the feet close to the hips. Place the hands, palms downward, firmly by the sides of the body at the hips.

First, try to raise the hips from the bed, and later on, on the same supports, raise up all of the body except shoulders and head. As more strength returns, execute these two exercises with the arms folded over the chest. And when you are well and strong, you can raise the entire body on the feet and the back of the head.

When just the hips are raised, the muscles in the back of the hips and the small of the back are brought into play. When all of the body except the head and shoulders is clear of the bed, the back is exercised up to the shoulders; and when the body rests on the back of the head and feet only, every back muscle all the way to the neck is actively engaged.

Exercise VII. This exercise is for the upbuilding of the various front, back, and side muscles of the neck. Lie on the back of your head and the flat of your back, with legs touching and arms at your sides. Move the head first to one side and then to the other as far as possible, every time seeing to it that one ear is completely buried in the pillow.

Raise the head from the pillow as far as possible and look at the ceiling. Hold for a moment and then let the head fall back. Next, press the head hard back into the pillow and hold for a moment; and lastly, with the head on its back, look behind as far as you can.

All these exercises are as efficacious for convalescent women and children as for men.—ANTHONY BARKER *in N. Y. Sun.*

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Book Reviews.

PROGRESSIVE MEDICINE, Vol. IV, December, 1902. A quarterly digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 412 pages, 54 illustrations. Per volume, $2.50, by express prepaid. Per annum, in four cloth-bound volumes, $10. Lea Bros. & Co., publishers, Philadelphia and New York.

Dr. Max Einhorn opens the concluding volume of the 1902 series of this classical work which has now won its place as a standard in every up-to-date library. In his chosen line Dr. Einhorn is always at home, and in this paper he rapidly sketches the most recent advances in connection with the treatment of diseases of the digestive tract, including the liver, pancreas and peritoneum. He is especially lucid in his discussion of affections of the gall bladder and pancreas.

The section on Anesthetics, Amputations, Fractures, Dislocations, Orthopedics and Surgery of the Extremities is treated by Dr. Joseph C. Bloodgood in a thoroughly practical and highly satisfactory manner. His contribution is freely and well illustrated.

"Genito-Urinary Diseases," by Dr. Wm. T. Belfield, includes an interesting and instructive resumé of recent advances in the treatment of prostatic diseases. It is a timely discussion of a topic that is daily attracting more and more attention.

Dr. Bradford limits himself to a very full and forcible discussion of the present knowledge concerning renal diseases and their complications.

The general practitioner will be more than usually interested in Dr. Brubaker's section on "Physiology." He describes in detail the fairly startling revelations by Loeb and Matthews. So much has been said of these in the literary magazines and the public press that an authoritative estimate of their real significance will be gladly welcomed by every student of medicine.

"Hygiene and Its Relation to Preventive Medicine," a theme which has been made especially prominent through the efforts of a leading pharmaceutical house, is treated by Dr. Harrington.

"The Therapeutic Referendum," by Dr. E. L. Thornton, occupying nearly 90 pages of the work, is a terse statement of the proved value of all the most recent remedies and methods of treatment.

On the whole, this concluding volume of the year is, if anything, more interesting and important than any of its predecessors, which is saying a good deal. The publishers have not neglected their part of the work. It is quite up to their high standard.

A TEXT-BOOK OF NURSING, *for the use of Training Schools, Families and Private Students.* By Clara Weeks-Shaw. Third edition. Thoroughly revised and Enlarged. New York, D. Appleton & Co., 1902.

That this work has been well received by those to whom its teachings are addressed is practically proved by the demand for a third edition, since there can be no more decisive test as to the value of any publication of this character.

The introductory chapter is premised by a quotation from that sturdy old iconoclast, Thomas Carlyle:

"Blessed is he who has found his work; let him ask no other blessedness."

Starting with some one's definition of health as "the perfect circulation of pure blood in a sound organism," the author adds that "any departure from either of these three conditions constitutes disease. There is recognized in nature a certain tendency to reparation, a predisposition to return to the conditions of health, whenever there has been any deviation from them. To assist this is the object of treatment. To keep the patient in the state most favorable for the action of this reparative tendency is especially the vocation of the nurse. There are few who will not be called upon to serve in this capacity at some time in their lives; fewer still who will not at some time have occasion to be grateful for the ministrations of a skilful and efficient nurse, or annoyed by the blunders of an awkward and incompetent one.

"Nursing, therefore, is an art, the importance of which can scarcely be overestimated."

This is the keynote to the contents of the volume, which is a complete, perspicacious and satisfactory exposition of the important subject embraced in its title. The illustrations are not profuse, but are sufficient for all practical needs. The make-up of the book from the publisher's standpoint is much above that of the average medical publication.

BIOGRAPHIC CLINICS: THE ORIGIN OF THE ILL HEALTH OF DEQUINCEY, CARLYLE, DARWIN, HUXLEY AND BROWNING.

It is a peculiar fact that the letters and other writings of DeQuincey, Carlyle, Darwin, Huxley and Browning, liberal as they are with reference to the continued ill-health of those great writers, have not before this suggested to the medical profession an opportunity for research into the causal factors of those physical conditions. That the opportunity has not until now been recognized in its proper light is evidenced by the hitherto total absence of any work dealing with this subject. Dr. George M. Gould's "Biographic Clinics" (P. Blakiston's Son & Co., Philadelphia), which is devoted to this neglected subject, should, therefore, prove a most unique and valuable contribution to biographical and medical literature.

Dr. Gould has gathered from the biographies, writings and letters of the five named men every reference to their ill health. Each endured, as is well known, a life of suffering which made almost every day a torment and by which their work and worth as an asset of the nation and civilization was conditioned and ofter rendered morbid. The cause of their affliction was an utter mystery to their physicians. No explanation explained, and no cure cured. Dr. Gould has gone into the "why" of this very thoroughly and the conclusion reached by him, from logic and from a careful summary of the clinical symptoms, is that each of the writers suffered from eye strain, and that scientific correction of their ametropia would have transformed their lives of mystery into lives of happiness. A history of the discovery of astigmatism and eye strain, with a discussion of its indications and responsibilities, completes the work. It is interestingly written, and will undoubtedly meet with a ready sale among medical men and those interested in the works and lives of the quintette of great writers.

NATURE'S MIRACLES: FAMILIAR TALKS ON SCIENCE. *By Elisha Gray, Ph.D., LL. D. Three volumes, decorated cloth, 60 cents net, per volume.*

Vol. I.—Earth: World-Building and Life; Limestone; Coal; Slate and Shale; Salt. Air: The Atmosphere; Air Temperature; Cloud Formation; Wind—Why it Blows; Local Winds; Weather Predictions; Dew; Hailstones and Snow; Meteors; The Sky and its Color; Liquid Air. Water: Rivers and Floods; Tides; Sponge; Water and Ice; Stored Energy in Water; Why Does Ice Float?; Glaciers; The Ice Age; Glacial and Preglacial Conditions and Effects (three Chaps).

Vol. II.—Energy: A Constant Quantity; Energy of Motion and Position; Forces of Nature; Transmutation of Energy; Energy in Relation to Life. Vibration: Sound; Echo and Resonance; Sound-Sympathy; Noise and Music; Music and Musicians; Sound-Interference; Sound-Language; Heat and Matter; Expansion; Terrestrial Heat; Generation of Heat; Diffusion of Heat; Radiation; Sun's Rays; Science of Light; Light and Ether; Color; Transparency; Mirage; Phosphorence; The Eye; Shadows. Explosives: Gunpowder; Powder and Nitroglycerine; High Explosives; Firing a Shot.

Vol. III.—Electricity and Magnetism:

History of Electrical Science; History of Magnetism; Theory and Nature of Magnetism; Theory of Electricity; Electrical Currents; Electric Generators; Atmospheric Electricity; Electrical Measurement; Electric Telegraph; Receiving Messages; Miscellaneous Methods; Multiple Transmission; Way Duplex System; The Telephone; How the Telephone Talks; Submarine Telegraphy; Short-Line Telegraphs; The Telautograph; Some Curiosities; Wireless Telegraphy. Niagara Falls Power: Introduction; Appliances; Products—Carborundum, Bleaching Powder, Aluminum, Calcium Carbide, etc. The New Era. New York, Fords, Howard & Hulbert.

Contrary to popular belief, Dr. Gray and not the present would-be monopolizer of that wonderful instrument, gave us the telephone.

These modest and compact little volumes place the world under renewed obligations to this untiring scientist. They place at the command of the reader, whether lay or professional, a concise and reliable knowledge of the fundamental laws by which the world exists and is governed. The gifted author indulges in no speculations, but imparts knowledge in a way to be understood by the general reader. His style is clear and to the point and his matter is authoritative.

With these three volumes in his library no one need be without a substantial knowledge of general science, but can make himself competent to converse intelligently on all the topics treated.

OUTLINES OF COSMIC PHILOSOPHY BASED ON THE DOCTRINE OF EVOLUTION, WITH CRITICISMS OF THE POSITIVE PHILOSOPHY. *By John Fiske, in two volumes. Boston and New York, Houghton, Mifflin & Company.*

This profound work of one of the profoundest thinkers and philosophical critics of the age is based upon lectures originally given at Harvard, in the autumn of 1869 and spring of 1871. These lectures were afterwards repeated in part in Boston, New York, Milwaukee and London. Originally designed as only a criticism of Compte's Positive Philosophy, and not for publication in book form, at least, in their present form, they were received with such marked interest by scientific men that the author decided to enlarge the theme so as to include an outline sketch of the new philosophy, based on the doctrine of evolution.

Professor Fiske boldly seconded the work of Herbert Spencer toward demolishing the positive philosophy of Auguste Compte, ingenious and plausible as that doctrine was for a long time held to be.

As a few selections from the Table of Contents will show, this work is not one for the casual or superficial reader, but is for thinkers and those who have already made some progress in the study of logic, science and metaphysics. A majority of the omniverous devourers of sensational literature will find nothing in it to satisfy either their morbid appetites or their morbid imaginations.

The Relativity of Knowledge; The Scope of Philosophy; The Test of Truth; Phenomenon and Noumenon; The Subjective and Objective Methods; Causation; . . . . Cosmism and Positivism; Matter, Motion and Force; Evolution and Dissolution; Planetary Evolution; The Evolution of the Earth; The Beginnings of Life; Special Creation or Derivation; Natural Selection; Life and Mind; The Composition of Mind; Genesis of Man, Intellectually; Genesis of Man, Morally; Matter and Spirit; Religion as Adjustment.

As a specimen of his line of reasoning, take this from "The Scope of Philosophy," Vol. I., p. 44:

"Or, to sum up by a set of general, though not severely accurate contrasts (which, after all, the foregoing explanation we may safely do): Common knowledge expresses in a single formula a universal truth respecting a particular group of phenomena; science expresses in a single formula a general truth respecting an entire order of phenomena; philosophy expresses in a single formula a universal truth respecting the whole world of phenomena.

"Philosophy, therefore, remains, as of old, the study of the cosmos—save that it is the study of phenomena, not of noumena; of evolution, not of creation; of laws, not of purposes; of the How? not of the Why?"

Or take the following from "Religion as Adjustment," Vol. II., p. 461:

"Thus, as science advances, Nature is better understood. As Art progresses, she inflicts less pain and bestows more pleasure. Once hated as an enemy, she is at last revered as a benefactor. Gradually it comes to be perceived that all pain arises from disregard of her widely framed ordinances; and that by conformity to those ordinances pain may ultimately be avoided. Where the ancient man saw nothing but capricious volition, the modern man beholds force acting by invariable methods."

But we need not quote at length. A bare hint of the storehouse before him is sufficient for the thinker, whereas the non-thinker will hardly turn a second page of the book.

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SOUTH SEA MEDICINE MEN.

AMONG the South Sea Islanders no man falls sick or dies from natural causes. They would argue, if they were called upon to analyze their belief, that health is the natural condition, and that every departure from it must be caused by supernatural agency, and since disease is an evil, you must look for its agent among those who wish you evil. Thus far they are at one with many good people in Europe who take comfort in the thought that every visitation of sickness is a divine judgment for their sins; but savages push their logic further. Their gods do no mischief for mischief's sake, and since all men have enemies, and are all free to invoke the unseen powers for either good or evil, the sick man has only to make his choice among the number of his ill-wishers, and charge his heirs to avenge him. Every skilled craft tends to specialization. A few successes in causing illness by spells gave a man a reputation as an expert. The unsuccessful found him ready to remove their enemies for a consideration, he took to the business as a profession, handing his secret down to his son, and his son's son, until the trade became hereditary. A family that once acquired it took good care not to lose it by bungling, as the "wise women" sometimes did, for the art of killing by witchcraft had this decided advantage over the art of healing, that if the spell failed there were other ways—a dose of something in the kava cup or a club stroke on a dark night. Thus among some of the Melanesian tribes it is not too much to say that the population is divided between the companies of them that caused disease and them that healed it. In Fiji leprosy was a special branch of the black art. No common wizard has the hardihood to pretend that he can compass it by the ordinary means of burying a lock of the victim's hair in a bamboo with incantations, and this is well, for even the most cunning healers admit that leprosy is incurable. The power of infecting with leprosy is hereditary in certain families alone. Their deified ancestors have become, as it were, leper gods, whose priests are the oldest living representatives of their stock. The evolution of the idea may be easily traced. Leprosy prevails in certain families, therefore the spirit of leprosy, which is the Fijian equivalent for contagion, is a sort of family retainer, obsequious to the commands of his hereditary masters, and since a living spirit must have a place to live in certain stones are pointed out as his shrines, and these are hedged about with a tabu that is never raised.

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IN response to many inquiries and some urgent appeals we have decided to resume the Department of "Notes and Queries" in the March issue of the GAZETTE.

We trust those friends who have expressed their regret at its temporary discontinuance will be generous in their contribution of queries of general interest, to the end that its columns may grow more and more valuable to our rapidly growing family of readers.—Editor GAZETTE.

THE
DIETETIC AND HYGIENIC GAZETTE
A MONTHLY JOURNAL OF PHYSIOLOGICAL MEDICINE

Vol. XIX. NEW YORK, MARCH, 1903. No. 3.

THE PREVENTION OF DISEASE.

By C. F. Ulrich, A.M., M.D.,

(Second Paper.)

The next element essential to health, without which man cannot live, and which should be supplied in abundance and of the greatest possible purity, is water. Every physician and every intelligent layman, knows that by far the greatest part of the human body consists of water, without which there would be no softness, no pliability, no mobility, no circulation of the fluids, in short no life. This water is usually obtained from springs, wells, cisterns in which rainwater is stored as caught from the roofs of houses during showers, and from running streams. In the earlier years not much was thought or said about the purity of the water, and the people were satisfied to drink the water, provided it looked clear. But since the great increase of population and the crowding together into cities and large towns, it has become one of the burning questions of the day. How shall we obtain pure water free from irritating and poisonous substances, unpolluted by the filth which necessarily accumulates where there is a dense population, containing a minimum of the germs of disease which find their way through the surface drainage and sewerage into wells and streams? In a paper of no larger scope than this the subject can only be briefly alluded to; because to elucidate it fully would require a book of many pages. Springs and wells may be protected from pollution to a certain extent by being properly walled in and periodically cleaned out. An old-fashioned well that is dug out wide enough to enable the owner to send men down to clean it out, should be walled with the same care that is exercised in building a house. The wall should be impervious to water, to within a short distance of the source of the water, and should be well curbed some distance above the ground. A little mound should be made around the external wall, turfed or sown in grass to prevent the surface water from encroaching on the well. By these devices well water may be kept comparatively pure. But by the neglect of such precautions the well, although the water may be perfectly clear, is liable to become a deathtrap. The writer of this lived a number of years in the South, where wells, springs, brooks and creeks went dry every summer. There the people had large cisterns, lined with brick and hydraulic cement. They caught the water from the roof of the dwelling, first allowing a good shower to wash it out. This water was run into the cistern early in the year, when the air, the water and the roof were less infested with spores, germs, infusoria, etc., and the cistern was large enough to hold a sufficiency of water to last the family for a year. For the livestock they had cisterns connected with the barns. They constructed a kind of rude filter by mixing sand, gravel and charcoal through which the water had to run before entering the cistern. Had this filter been properly constructed and the materials renewed every time the cistern was filled it would have contributed much toward securing purity of the water, but unfortunately many neglected these precautions, both as to the renewing of the filter and as to the time of running the water into the cistern. A large crop of mosquitoes was thus grown and the inevitable malaria was the result, which fact, however, was not known to these good people at that time. By observing these precautions and cleaning the cisterns thoroughly once a year a very respectable and healthy water may be procured. The keeping of the streams clear is a much more difficult task, because they are made up from the surface drainage, the sewerage, from water-closets, kitchens, outdoor privies, hospitals, and all sorts of factories, washed down by the rains. All kinds of filth accumulated from any source whatever, that can be washed away by rain, goes into the stream. Many people collect their filth in barrels, boxes or carts and dump it into the nearest stream, or pile it up in places where the next heavy rain that falls will wash it into the river. This water thus polluted is then conveyed in barrels or buckets into the dwellings to serve families as a beverage and for cooking purposes. In the larger towns and in cities, situated on the banks of a river, pumping stations are established and the water is drawn from the river, sent by means of forcepumps into reservoirs, and thence distributed by a system of pipes throughout the city and into the houses. When we think of all the filth that is thus washed into the streams from which inhabitants are supplied with the beverage that is so essential to the preservation of life and health, is it any wonder that there is so much sickness in the world? Does it not rather strike us with astonishment that so many escape sickness and pass through life comparatively healthy? What can be done to relieve mankind of this cause of sickness and suffering? As has already been suggested a portion of this filth can be disposed of by crematories and fertilizing plants. The disposition of the sewage is a more difficult problem, for this, sooner or later, finds its way into the streams of running water, from which consumers obtain their supply. Filtering, if properly managed, goes a great way toward purifying the water by removing at least the visible filth contained in it, thus preventing the entrance into the system substances that, if not absolutely poisonous yet cause irritation with subsequent inflammation, of the delicate lining membranes of many organs and vessels. They also cause obstruction in the small and delicate tubules in which the internal organism abounds, thus interfering with their activity and causing disease. But investigation has not proved that filtering is sufficient to remove the bacilli of disease which can only be seen by a powerful microscope. Manufacturers of filters claim that their special pattern of filter will remove from 75 per cent. to 90 per cent. of these microbes from the water. But that statement is not yet fully proven. Boiling the water destroys the germs, but generally imparts an unpleasant flavor to it, making it obnoxious as a beverage, especially if it is boiled before filtering. We have always recommended that it should be filtered before boiling. Distilled water has been recommended by many for drinking purposes. Now, although very useful for clearing out the system where the organism has been obstructed by the introduction of filth into the kidneys and other organs containing very fine tubules, it is deficient in other respects. So when there are evidences of such obstruction, it would be advisable for the family physician to recommend the use of distilled water. But still the problem stares us in the face; how shall we avoid the pollution of our streams which makes filtering, boiling and distilling necessary? This is a problem that has agitated the mind of the sanitarian for years, but nothing tangible and reliable has as yet been developed. An idea has occurred to the writer which is advanced with diffidence, lest it should appear impracticable, for it has not yet been studied in all its bearings, and might present difficulties that would outweigh its benefits. Yet it will afford food for thought, and something useful may grow out of it. It is this; near the stream on which the city is situated, watertight tanks or reservoirs might be constructed into which the sewers from every part of the city could be conducted which usually discharge their contents into the river. It will be asked; what disposition will be made of the contents of the tanks when they are full? The solution of this question occurs to the writer from what he saw in European villages when traveling in that country. Every farmhouse had in its stableyard a horsepond as it was called, so situated that the drainage from the stables and the manure pile flowed into it. This horsepond was emptied by a large barrel on a cart, something like our street watering carts, and hauled out to the farms where it was sprinkled on the soil. Such contrivance on a large scale might be constructed for the disposition of the contents of these sewerage reservoirs, which would enrich the soil, while to a considerable extent preventing the pollution of the river-water. This is thrown out merely as a hint from which some more practicable and effective plan might be developed. The individual who has started in life with an organism near perfection and has availed himself of the advantages of sunlight as explained above, who has enjoyed the pure air with all its blessings, and who has freely used an abundance of clear, pure and refreshing water, will be strongly fortified against the attacks of disease, and will be almost immune. With all this, however, he must practice personal cleanliness in every respect. Frequent bathing to keep the skin clean and the pores open to promote diaphoresis, since the sudoriferous glands, with their orifices, the pores, form one of the most important emunctories of the body, having a function similar to that of the kidneys. When diaphoresis is interfered with by a total or partial closure of the pores, a hot water bath, hot vapor bath or Turkish bath would be very efficacious in opening the way for the cleansing of the system, and thus preventing diseases due to such obstructions. But as these hot baths are at times depressing in their effects, it would be advisable to follow them up with a cold plunge or a shower bath, followed by a thorough rubbing of the skin, until the surface is in a glow, and a lively circulation is induced. But daily abulutions should always be practised by every one desiring to enjoy good health. The same regimen should also be enforced where the person labors under any deficiency in regard to the healthful actions of the organism, although the regulations must be modified in some cases to suit the conditions. As the body grows and is kept in repair by means of the food and drink which is taken during life, the question of dietetics is one of the utmost importance in discussing the prevention of disease. The food is prepared for digestion and assimilation in the gastro-intestinal or alimentary canal, which, by means of a series of glands and follicles produces the necessary fluids for thus preparing the food, and by the peristalsis of the muscular coat with which it is endowed, moves it on from place to place. The chylopoietic system with its lacteal glands and ducts takes up such portions as are fit for assimilation, while the residue is carried by peristalsis into the colon and rectum to be expelled from the body. Now it is very important that the right kind of food should be taken, containing the materials necessary for the production of all the tissues of the body. If a large quantity of food is taken that is unfit for that purpose and cannot furnish the proper material. the system is overloaded with rubbish, the vital processes are interfered with, the emunctories are overworked and lose the power to perform their functions. A variety of diseases may result from such indiscretion, such as chronic diarrhea, habitual constipation, with various other gastric and intestional diseases, also Bright's disease and a variety of other renal disorders. Of course it is not always the same food that will be suitable for every individual, and this question must sometimes be decided empirically. Each person should be instructed by his physician what kind of food is good for him, and if he finds any special article of diet disagreeing with him he should avoid it in the future. If it is a child, the parents, by the advice of the physician, should supervise the diet. If it is perfectly healthy, all the organs in good working order, enjoying apparent immunity against disease, it can eat whatever is set before the family, making its own selection. Care, however, should be taken not to permit the child to eat excessively of anything. If the child has any natural defect in its constitution, or deficiency in the development of any organ or tissue, it should be supplied with such diet as contains ingredients or principles which could make up for that deficiency. There are many artificial products, both solid and liquid, that are useful in such cases. Of course there are very few laymen sufficiently versed in physiology and dietetics to know what is the right thing to do in such cases, and the family physician should be consulted. Every physician should be well posted in dietetics, which is beginning to be regarded as a most important branch of medical science, but which has been most woefully neglected heretofore, especially in the prevention of disease. It would be out of place to include a dissertation on dietetics in a paper of limited scope, but it is the duty of every physician, not only to know this, but also to instruct his clients in the practical part of it. Proper physical training is another important item in the process of strengthening the body and imparting to it a high degree of immunity against disease. It is a well known principle in physiology that the reasonable and regular exercise of any part of the human system will impart strength and power of endurance. Take, for instance, the muscular system which depends greatly upon regular exercise for its power to perform the work assigned to it. Observe the boy as he grows up; if he lives an active life, moving about all the time, walking, running, leaping, performing such labor as is adapted to his strength, he will develop a powerful muscular system, enabling him to endure hardships, to overcome physical difficulties, to resist the attacks of many diseases, to which others less abundantly endowed with muscular force, would succumb. A powerful muscular development not only imparts strength and rapidity of motion, it also promotes the circulation of the blood, and through that the vital force. The question is often asked, what is the motive power that sends the venous blood back to the heart? We know that the veins are supplied with valves, allowing the blood to go only in one direction. The slight muscular development in the coats of the blood vessels themselves would not be sufficient to accomplish this work. The blood vessels are imbedded in, or surrounded by muscular tissue in every direction. These muscles, impinging upon the blood-vessels, and thus making pressure upon them assist in driving the blood through them in the direction that the valves will permit, that is toward the heart. Without this assistance the return circulations would be very weak, varix dilation of the veins with swelling of the extremities would be the result. From this we see that a good muscular development improves the circulation, which, in its turn, is essential to a strong, healthy body, able to perform its part in life successfully and present a defiant front to the aggressions of disease. A good muscular development will also be beneficial in promoting peristalsis in the ailmentary canal, quickening the vital processes by moving the nutriment through the stomach, the intestines, and all the vessels of the chyopoietic system, preparing it for assimilation, and assisting materially in defecation, which is essential to good health. If, on the other hand, the body remains inert, without the motive power induced by exercise, the muscular system becomes flabby and powerless. All the vital processes are weakened, the person becomes pale, the flesh soft, energy fails, the emunctories cease to perform their work, constipation sets in, the bladder loses its elasticity, the urine may be retained, and unpleasant consequences may result. Should now the victim of this condition be exposed to disease he would have little power of resistance. Another fault in physical training is over exercise. This exerts the muscles beyond their power and finally causes their destruction, for as every motion of a muscular fiber, or any other tissue, destroys or uses up a certain portion, if the muscle is overworked fatigue ensues and the power of repair is diminished. Thus the muscle, instead of growing through exercise and increasing in strength dwindles away and finally loses its power altogether. This principle pervades all nature, moderate and regular exercise, with proper nutritions, strengthens the body, deficient exercise or none at all, prevents the natural development of all the organs, incapacitating them for the satisfactory performance of their functions; over-exertion, too violent exercise, wears out the tissues too rapidly, not giving nature time to repair the waste. Thus we see that a judicious and reasonable physical training is one of the essentials for maintaining and promoting the health of the human body, without which the other means heretofore mentioned would fail, or at least produce only a partial result.

We have now spoken of what is necessary to preserve the health of a body that is born healthy, and what is required to improve the condition of such as may have brought a defect with them at birth, due perhaps to heredity. The next point to be considered is how to prevent the bacilli of disease from entering an organism not entirely immune. This brings us to speak of a special disease. The one most feared, though not the most deadly, is variola, or smallpox. What makes it so much feared is its loathsomeness and its remarkable tendency to disfigure the face for life. This disease is propagated by a specific virus, developed in the pustules, either by direct contact or by means of the clothing, bedding or any article that may have been on or about the person affected. Many cases of smallpox have been traced to contact with persons who had not reached the pustular stage. An early diagnosis is therefore very important, in order to prevent its propagation. Rigid quarantine should be enforced in all cases, to confine it to the individual and family, and prevent its spread to other houses in the vicinity. It is not necessary to describe the method of quarantine, as that is well known to the profession and to the laity. One thing is not much spoken of, nor even thought of by many, which may yet cause much mischief in the way of spreading the disease. I refer to the presence of cats and dogs, as well as other domestic animals which are left at liberty to roam about the neighborhood and visit other houses, where they are frequently petted by the children. This method of spreading the disease being seldom thought of is not provided against. These animals, if they cannot be kept at home, should be killed. It has long been the opinion of the writer that this and other contagious skin diseases can be propagated by flies and other insects that infect human habitations. It is reasonable to suppose that flies which make human dwellings their habitats and do not confine themselves to one house would carry whatever contagion they may find, thus spreading disease from place to place. A close examination of their feet with the aid of a magnifying glass, will reveal the fact that they are covered with filth, some of which is always left on the face or hands of any one to whom they pay a visit. Of course it is impossible to quarantine these insects, or to control them in any way, but much may be done to exclude them from the houses by screening the doors and windows. It is true many effect an entrance by the frequent opening of the screen doors, but the judicious use of fly-paper will destroy a good many of those. As flies are attracted by odors emanating from offal, excreta and effluvia, from the bodies of diseased or unclean persons, great care should be taken to remove all filth to places where it will be innocuous and to practise such personal cleanliness, local hygiene, with general sanitation of the premises, that the odors usually attracting flies may be reduced to a minimum, and consequently their number greatly diminished. With the exception of the last named preventive, the exclusion of insects, the means suggested above for controlling this horribly loathsome disease, are easily managed, and if public authority is well seconded by individual effort, smallpox can be kept under control and finally subdued. The great discovery of Jenner, vaccination, which has stood the test for more than a century, is still our sheet anchor in its prevention, and should be insisted on by the authorities in every city, town and village, and, as much as possible, in the rural districts, thus rendering the population, as far as possible, immune. Unfortunately there are many persons, even some scientific men, who do not believe in the immunizing power of vaccination, and who consequently oppose it, putting it into the heads of many ignorant people to refuse to let their families be vaccinated. If vaccination were universally practised, if the greatest care were exercised in the preparation of the virus, both as to its strength and its purity, if absolute cleanliness were maintained by the physician in the operation and subsequently by the family, almost the entire population would be immune, and those who nevertheless became its victims, would have it in the mild form known as varioloid. If, with this general immunity, the rules of hygiene and sanitation were carefully observed, the dreaded disease of smallpox would soon become a thing of the past. Much that has just been suggested for the prevention of variola will apply with equal force to scarlatina, diphtheria, measles and other contagious diseases. Diphtheria has been more fatal than variola and was for a long time the terror and odium of the medical fraternity. Since the discovery of antitoxin the death rate of this terrible disease has been greatly reduced. The prophylactic or immunizing use of this preparation has not yet been sufficiently tested in practice to give it the same rank in the prevention of diphtheria, that vaccination has so long held in relation to smallpox. Should future experiments establish this, a great advance would have been made in preventive medicine. This would open the way for many other discoveries in the same line. In the meantime quarantine and universal cleanliness must be our main weapons for warding off contagious diseases. The venereal diseases, syphilis and gonorrhea, with their numerous sequelæ, occupy a very prominent position among the diseases that are a terror to humanity. Many efforts have been made to eradicate them, but hitherto very little has been accomplished.

About half a century ago much was said and written about syphilization, that is inoculating with syphilitic virus, to render men immune, but the practice fell into disuse, partly because it proved to be a failure, but doubtless chiefly because it had a tendency to encourage immorality. In some countries of Europe, the so-called sporting houses are placed under medical surveillance, being subjected to periodical inspections, and the inmates quarantined when found unclean. This, however, does not reach the men who become infected. The advocates of this system speak well of it and claim that it is of great value in reducing the prevalence of these filthy diseases. Some experiments have been made in that line in the United States, but whether the failure is due to a lax enforcement of the law, or to opposition founded on sentiment, the writer is not prepared to decide. A more extensive and thorough education of the public in regard to the terrible consequences of such diseases would constitute the most efficient prophylactic against this scourge. Let our youth be carefully and thoroughly instructed in regard to the awful consequences of all sorts of dissipation. Let them avoid the excessive use of alcoholic beverages, the keeping of vicious company, both of which lead to the frequenting of the haunts of infamy, where such diseases are contracted. Let cleanliness be inculcated in them from the earliest infancy, which of course requires the active coöperation of parents and teachers. Then, if the young people are made aware of the dangers that confront them, much evil may be prevented in that direction. Even if a young man has yielded to temptation and allowed himself to indulge in illicit pleasures, he may by practising a thorough cleansing process, avoid danger, if he is not sure that the partner of his indulgence is absolutely clean. All decent and respectable people, male and female, exercise great care in keeping face, hands and bodies clean. Now the organs of generation require more care than any other part of the body, and should be subjected to daily ablutions, omitting none of the numerous folds that are found in the mucous lining of those organs, which may so easily conceal and retain germs of disease, beside disgusting the sense of cleanliness by the disintegration of the fluids that accumulate in those places. Therefore cleanliness at all times, comparative, if not absolute virtue, marriage at a comparatively early age, and faithfulness to the life partner, are the best prophylactics against venereal disease.

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BOILING WATER AS SURGICAL AID.

As the result of his experiments Dr. Wyeth resolved to use boiling water for the obliteration of a very disfiguring nevus of the lip in a young woman. A previous attempt at its removal by the knife led to serious bleeding. Part of the vascular growth was injected with hot water with subsequent atrophy that was very promising. Three large syringefuls were then injected into various parts of the growth with the result that it all atrophied. Pressure was exerted all around the growth during the injection to prevent clots being carried into the general circulation. The tumors continued to atrophy for some time after the operation and the patient now considers herself cured. The disfigurement is entirely gone.

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WHAT OF THE FUTURE?

Chairman's Address, Delivered Before the Section on Obstetrics and Diseases of Women, at the Fifty-third Annual Meeting of the American Medical Association, at Saratoga Springs, N. Y., June 10-13, 1902.

BY J. H. CARSTENS, M.D.,
Detroit, Mich.

This question we may well ask ourselves, for we certainly will have other things to do than to take out tumors and diseased tubes. The obstetric part of our section has virtually been settled. Obstetrics is based on purely mechanical laws, and in the vast majority of cases nature needs no help. The small percentage of abnormal cases that require the assistance of the obstetrician are now well understood. The patients are under observation from the beginning of pregnancy, many of the cases which would be serious are recognized before that time, and by the induction of premature labor and other methods many of the more severe cases, I might say severe confinements, are prevented.

Even the severe cases that are allowed to go on to full term can be delivered safely, for mother and child, by Cesarean section. The dangers of the physiologic process of confinement are now virtually nil.

Formerly one woman out of forty died, to-day, as reported at the Preston Retreat, 1,000 cases without a death. In private practice 500 and more cases have been reported without a death, and the other day I saw in a journal that at a lying-in hospital there had been 1,900 consecutive cases without a death, hence it seems to me that I can truthfully say that the moot questions in the obstetric part of our Section have virtually been all settled.

As our program shows, very few papers are presented on this subject. I have urged a number of members to write papers on this subject especially, so as to make some kind of show for obstetrics, but it is hard work. Every possible abnormal condition has been dilated on and from so many different standpoints that it is almost impossible for anyone to write a paper without repeating what has been said many a time before, yes, it is even difficult to write a paper that presents a subject from a slightly different angle; hence, no one wants to write a paper that is simply obstetric literature; consequently all our papers are on gynecology, and what kind of gynecology? Not that of the past, of Ferguson's speculum and the application of tincture of iodin and leeches and tampons and douches with occasional perineorrhaphy, no, that kind of gynecology is past. The papers we have to-day are the papers of mechanics, of surgery of the pelvis, the removal of tumors, the removal or partial removal of the uterus, ovaries or tubes or the anchoring of the same as nearly as possible in the normal condition if they are displaced. In the last few years our special effort has been to preserve as much as possible the generative organs, where formerly we were more anxious to remove them entirely; now we select our case most carefully and preserve the whole organ, or, if we cannot do that, we preserve as much as we possibly can.

The various moot questions in this branch of our Section, that is, the gynecologic, are consequently also being settled. Very soon there will be nothing more to write about. With the thousands of workers in different parts of the world, a little is added here and a little there; and soon all disputed points will be made clear and settled, and what then? Our Section's work will be done, very little new can be presented and few papers will be reported; very rare cases only or resumés of some subject. We have nearly arrived at this point, and therefore I throw out the question: "What of the Future?"

The general practitioner of the country is the one who attends the cases of confinement occurring in his neighborhood. Some of us may drift into the ranks of the general practitioner; the other part of our Section, of the surgical habitus, swing off and join the ranks of the general surgeon, and but little more will be left of our Section.

That will be the end unless we find something else that could be properly brought before our Section and that we, with our experience with women, could properly handle, discuss and settle in the interests of the race.

When we consider that nation which has been the mighty ferment and a great factor in the civilization of the race during the last three centuries, when we consider that France is a decadent race, has virtually reached its limitation of growth, that without immigration its population does not increase, there is food for thought.

When we consider that England is beginning to get in the same condition, that even in Germany the proportion of children to the families is very decidedly diminished, then we can easily see that there is other work for the gynecologists and obstetrician.

In our own country the decreasing fecundity of American women is so well known and has reached a stage where barely one child is found in the family on an average, and when we consider that the New England States have not grown—in fact, would have decreased in population were it not for the influx of foreign population and by the admixture of new vigorous blood—when we furthermore consider that even this very prolific foreign element in one generation has its fecundity diminished, the question becomes a serious one.

Malthus, more than a century ago, was afraid that the world would be over-populated, but he did not understand the process of evolution and that nature always provides means to prevent over-production.

We to-day may not believe that a nation should be gauged by the number of inhabitants, but rather by the mental caliber of its citizens, still we cannot ignore the fact that mental caliber without physical vigor is a very serious state of affairs. With the physique kept up at the highest point, mental improvement should go on as required by advancing civilization.

When we consider that a young woman

who is married insists on not having children right away or having children later in life, that she makes use of every possible trick to prevent or destroy pregnancy, thus ruining her health and destroying her power of reproduction at a later period when she is so anxious to have children and has found out that life is hardly worth living without children—without some object or aim to live for—when we have this old question brought to our attention we can readily see that there is something for us to do besides operating.

When we consider that lack of moral training that is often given by a selfish mother, who says before marriage: "I do not want my daughter to be troubled with children," we may well despair in our efforts. Then we can easily see that the work we may do in the medical societies, and of which the great public hears nothing, is of very little use, unless we, as individuals, each in our respective community, forge to the front and see that education and a higher and nobler standard of womanhood is inculcated in the mind of the rising generation.

When we consider that in a republican form of government all are equal and that all soon become ambitious, all want to shine, all are striving to get the best education obtainable, that some parents are denying themselves so that their children can acquire a better education and that the young people do all kinds of work and struggle along as well as they can, so that they may obtain an education, then it can readily be seen that the resulting product of such educational system will not be evenly balanced, there must be a disproportion between the physical and mental condition, hence not a normal condition, or there must be a degeneracy of both the body and the mind.

We know that when a highly civilized nation comes in contact with one which is low in intellectual development, that the latter nation will go under and finally be exterminated. It is the inability of the lower to keep pace with the rapid strides of the more enlightened nation. The change and the demand are too great and sudden.

The same thing occurs with individuals who have no hereditary tendency to mental training. If for generations the life has been a monotonous one, like "the man with the hoe," you might say, and you try all at once to educate the brain to the highest degree, something will give away—it should be gradual, little by little, generation after generation, and then the system can adjust itself to the various conditions required.

Take our school system: the children are stirred up to ambition, are urged to set their mark high and all to become teachers, lawyers, ministers and physicians. They have but one trait of the mind, ambition, but they have no mental capacity, cannot grasp principles, they learn with great difficulty, they forget easily, and in order to keep up they must study, and study hard. They work after school hours, yes, work to 12 and 1 o'clock at night. They get up early in the morning to review their lessons before school hours, and the result is inevitable. Insufficient sleep, hasty meals and lack of exercise will produce a partly educated mind and a physical wreck.

If such a person be a female it is all the worse. If such education is without much effect on the body up to puberty it certainly will be after. The tremendous demands made on the organism during the stage of rapid development from childhood to womanhood requires that the strain on the brain by excessive study should certainly be lessened, especially so during the menstrual period. There seems to be no provision made anywhere in our schools for this, and the more I see of it the more I am inclined to think that somewhere a change should be made.

Either there should be an absolute separation of the education of the sexes at puberty or the education should be so elastic that the young woman should be allowed to leave school for a few days or a week during every month without it being charged up to her or putting her back from her place in school. This is the point I think that requires our serious consideration. If the woman is of the age when she is fully developed physically, her menstrual function firmly and fully established, then there will be, probably, no objection to co-education. It is during this stage of development, it seems to me, that the great mischief is done.

I think the tremendous strain on the brain at this period required by our educational system must certainly affect the physical condition, and the result is, in many cases, neurasthenia, hysteria and broken-down women whose capacity for reproduction is very limited. If there is a puny child born it will probably go through the same course that its mother did and be physically worse.

This great problem so affecting the future of the race should receive our serious consideration. There are many other points in connection with this problem. The boy is less affected by that kind of training as his sympathetic nervous system is less called on than that of the female. Besides he has greater liberty of action, has more out-door exercise and grows up to vigor and manhood. When he marries one of the women with the educated mind, which he admires, and a broken-down system, which he does not see, it will only take a short time for him to see the mistake he has made.

He is strong and robust, with sexual vigor, she is weak and without passion, and it will not take long for trouble to arise. She is glad to be left alone as much as possible, and he finds company somewhere else. He picks up disease and gives it to her, and then we are called upon to remedy the trouble. Many women have told me that they were glad that their husbands let them alone and went somewhere else, they were perfectly satisfied. Think of such a view of life.

In this connection I might mention the question of prostitution. Venereal diseases are spread in many places and ways, but no doubt principally in brothels, especially of the lower kind. We must discuss this question thoroughly and come to some conclusion and then go before the public and insist on how it should be managed and controlled. Public opinion is averse to regulation and control, but I see no other way to prevent the spread of private diseases. We must first clear up this question in our own minds and then educate the public.

Again, we find another condition where a young, vigorous woman, with the right kind of brains, grasps things properly, will go through the same educational system quickly and lightly, with plenty of time to thoroughly masticate her food, plenty of time for exercise and fresh air. She passes through it with a fine trained mind and healthy body. She has ambition. She marries a rich but older man. The man is past his prime, this woman, strong, passionate, with a natural desire for a family, finds that she has made a mistake. She is suffering from sexual passion, super-abundant vitality which should be given vent by child-birth and lactation, and which is suppressed until nature rebels, and there is an explosion somewhere. She also ends with neurasthenia, hysteria, insane asylum, morphin or whisky.

When we consider that next to self-preservation, the preservation of the species is the strongest law of nature and that it permeates every organized being, from the dull monad of the primeval sea to the complicated organism of man, even increases with each higher nervous organization, then we must see that erotism plays a very important part in the life of a human being. We all see cases of young women suffering from ungratified sexual passion who perhaps do not even know what sexual intercourse is.

Holy horrors! This is a tabooed subject and must not be spoken of; it is dirty; it is vulgar. "To the pure all things are pure." We must speak of these things. We must learn about them and understand them, and then we can show the public at large what is normal and healthy. Only when we understand this ourselves can we find a remedy for the many abnormal or pervert conditions.

There is a history of another kind; with advancing civilization, if you can call it advancing civilization; there is the struggle for the mighty dollar; there is the ambition to shine, to appear big, to appear smart and rich. Young women want to marry a man with money or a large income. Young men see what women demand in the way of finery and style, that with a modest income they cannot afford to marry, so they postpone it until later in life, and women are thus thrown on their own resources when the parents become feeble and old and die. They must work early in life, the parents plan to give them a training or education where they can make an honest living, and they are all struggling for the highest positions that they can get, that of teachers, nurses, stenographers, bookkeepers, etc.

The competition in these various professions is great, all are getting overcrowded; every young woman wants something of that kind, none of them want to do housework. In order to prevent an overflood the requirements for all these positions are raised higher and higher year by year. Greater mental capacity is demanded to acquire the knowledge for any one of these more learned professions. When the knowledge is acquired the patient is broken down. Many fail in their calling which they have chosen, they made a mistake, they should have been something else. It is for us to solve this question of mental capacity and shove men and women into that direction, into that channel of activity, for which their mental and physical capacity is most capable.

This should be one of our great works to study and elucidate this great problem of the proper vocation of each individual. As a rule, all these kinds of persons finally become drones in their chosen position, filling it competently, but, as a rule, keep on the even tenor of the way, although "hope springs eternal in the home breast," but few find the hero of their ideal, few get married and thus live an unnatural life. Somewhere the nervous system will be unhinged and, although nature is wonderfully kind and compensating for weaknesses and defects, there is a limit even to nature, and after a series of years, generally during the period of the menopause, something snaps, some part of the system gives way and an invalid is the result.

It may be uphill work, but we must help to eradicate this notion that men can be gauged only by the number of the mighty dollars they have and not by the good they do.

In this connection I might call attention to another point that seems to be overlooked, and that is the everlasting suggestions to young girls about their pelvic organs. A young girl will grow up, have menstruation established and have no trouble, but as the result of suggestions from her mother, sisters or others, she may develop trouble. Always being asked if she has any pain, and wondering that she has not; asked if she has any discharge, and wondering that she has not; always being asked about the excessive flow—these constant suggestions, this constant calling attention to the womb and ovaries, will make the young girl think about her menstrual function, and a slight deviation from the usual will, after a time, attract her attention, and she will begin to think about it more, and, as congestion of any part of the body, say the hand, can be brought about by having the mind dwell upon it, so congestion of the pelvic organs can be brought about by thinking of it, and congestion is only a pre-stage of inflammation and pathologic changes.

With this thinking and worrying about the disturbances we have gynecologic tinkering, and then we have but one step more to chronic invalidism. It makes my heart ache when I see young girls and women subject to local treatment, injections, supports, etc., for months and years, when all they need is a normal mode of living, proper food and proper exercise. A little hypersecretion from the glands of the mucous membrane of the vagina or the uterus does not require local treatment always; it needs the treatment of the physiologist, that is all. I do not want to derogate proper local examination and treatment in special cases, what I protest against is the zeal with which this is carried on in simple ordinary cases.

More physiology is needed. We have all had patients come to us from a distance of hundreds of miles, expecting to go under a serious operation. On examination we find that all they need is to drink three pints of water a day, and with this advice we often send them home disappointed.

We have all had patients come to us from a great distance who were suffering from auto-infection, the result of constipation, and who need, instead of an operation, a proper regulation of diet and vigorous abdominal massage.

Many of the nervous cases sent to us, who are supposed to suffer from reflex-neurosis, are found to suffer from some of the protean symptoms of syphilis which have been overlooked because they are the latest manifestations found in the third generation and which are easily remedied by constitutional treatment.

How many brain diseases and diseases of the nervous system have been considered due to pelvic troubles simply because the patient was a female; every case of consumption or Bright's disease and every dyspepsia or appendicular colic; everything is supposed to be due to the diseases of the ovary or the uterus, if it occurs in a woman.

How we must constantly be on our guard and be broad general practitioners if we do not want to get in the path of the narrow specialist; to simply know a little part of the body, but forget the great wonderful complicated mechanism of the whole human organism.

In answering the question, "What of the Future?" I would say that we must have more papers and more discussion on the subjects to which I have called attention. We must get closer to the people in general and do more missionary work from house to house.

We must discourage the constant tendency of suggestions to young girls and women about the menstrual function. We must teach that this physiologic process in a healthy body will be taken care of by nature without artificial assistance.

We must see to it that the young woman has a sound body if she wants to acquire knowledge; that it is more important to have a healthy body than to possess great learning. We must oppose the cry that too much is being taught in our higher schools or the universities, that the demand on the mind is too great, as that is entirely wrong. We must teach that everybody was not born to attain this higher education, that only those should attend the higher institutes of learning who have the attributes of the mind which enable them to learn easily and quickly, and that even these require plenty of exercise and fresh air.

We should insist that gymnastics and systematic physical exercise should be taught in every school of the land, from the lower to the highest, and that the curriculum of study should embrace the most systematic course of gymnastics to produce a sound body with a sound mind.

We should thoroughly study the effects and the results of erotism on the human body. We should study how we can more thoroughly bring about a more perfect marriage relationship and prevent the frequent mismating, as shown in our courts.

In fact, we must more thoroughly study the exact positions of individuals, every combination of physical and mental condition and their most fit place and most proper vocation in life. We must branch out, we must look ahead, we must be the counsellors and the guides of the race in the future.

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RECORD OF INSALUBRITY.

THE Chinese port of Amoy on the canal of Formosa has the unenviable reputation of being the most unhealthful place in the world. Built some ten centuries ago over a cemetery in which, according to a modest calculation, 5,000,000 bodies were interred, its drinking water is derived from wells. Plague and typhus are epidemic, and the mortality reaches frightful proportions.

EPOCHS IN MEDICAL HISTORY.

BY W. S. STRANAHAN.

The threshold of the twentieth century is a point in history pregnant with valuable deductions in the history of medicine.

It is interesting to look back over the years, and note the gradual rise of medicine and surgery from the low level of superstition to a high plane of scientific achievement. The earliest writers on medicine place its origin, in common with that of most branches of knowledge, with the Egyptians. They appear to be the first nation that cultivated medicine and furthered its progress. Many peculiar and medical attributes were believed to belong to the deities. All diseases were supposed to originate from the anger of Isis. Resin was burned in the morning, myrrh at noon, and a composition termed cypha in the evening, in the Temple of Isis; and the sick were taken there to sleep, during which the oracles might reveal to them the means which they should employ to effect a cure. This is but one illustration of the superstition which prevailed at that time.

The earliest authentic records which we can ascertain from collateral reading are to be found in the Scriptures. Here it is stated that Joseph commanded his servants and physicians to embalm him (1750 B. C.). This fact shows that Egypt at that time possessed a set of men who practised the healing art and that they embalmed the dead.

Through the writings of Moses in the Scriptures we ascertain that the medicine of the Hebrews appertained mostly to public hygiene. Meat of the hog and rabbit was forbidden, as being injurious in the Egyptian and Indian climates. The relations of man and wife, and the purification of women, were regulated. The measures suggested by Moses for the prevention of leprosy have not yet been surpassed. Next to Moses, Solomon acquired an efficient knowledge of compounding medicines.

The Indian races were divided in castes, the priests alone enjoying the privilege of practising medicine. Their medical knowledge was condensed in a book which they called Vagadasastin. They believed the body gave rise to 100 species of gas, through 1,700 vessels, the gases conflicting and engendering diseases. So far as we know they were the first to record a way of testing the specific gravity of the urine. Though credited with many absurdities, they claimed to cure the bites of venomous serpents, and compounded an ointment which eradicated the cicatrices of smallpox, a result which has not as yet been attained in the present epoch.

The Chinese attribute the invention of medicine to Hoam Ti, one of their emperors, but beyond the use of cups, fomentations, lotions, plasters, baths, etc., their knowledge did not extend till the missionaries introduced their medical knowledge.

The condition of medicine in Greece was at first rudimentary, but later Greek physicians are credited with the most brilliant discoveries. The most distinguished of Chiron's pupils was Æsculapius, who possibly occupies the most exalted place in the history of medicine. Æsculapius is always painted with a staff, because the sick have need of support, and the serpent entwined around it is the symbol of wisdom.

The first operation of venesection is attributed to Podalirius, of recognized Grecian skill, the patient being a princess. The early Greeks above all recognized the value of physical culture, and were the children of to-day compelled to follow such a routine of training, a rugged constitution would replace many a delicate one.

Hygeia, from whence comes hygiene, or the art of preserving health, was the pretended sister of Æsculapius. To Hippocrates we owe the classification of endemic, sporadic and epidemic forms of diseases, and their division into acute and chronic.

Under the Ptolemies dissection of the human body was allowed, and Herophilus deserves first mention as a dissector. He described the brain and its vessels, the eye, the intestinal canal and parts of the muscular system. Erasistratus and Aretæus also added greatly to the medical progress of that age. Of all the physicians of antiquity, Galen was probably the most brilliant genius. In the midst of disorder he led back to the safer road of scientific observation, and wrote extensively on anatomy. He was the first vivisectionist.

After the sixth century medicine was exercised almost exclusively by the monks of the west, who were ignorant and superstitious.

During the thirteenth and fourteenth centuries medicine made remarkable progress in France under St. Louis. Medical universities were founded in Europe, medical instruction systematized. The progress of medicine in the nineteenth century was far more rigid, creditable and momentous than during any like period of the past. This is true not only in our own country, but in all civilized countries of the globe. Antique superstition, idle theories, foolish speculations, absurd practices, have been largely eliminated. Medical institutions are upon the loftiest plane in their history and teachers are better endowed than ever before.

The proving of drugs, electricity, the microscope, anesthesia, antisepsis, physiological research, laboratory experiments and hospital opportunities, are enormous inspirations to skilled treatment and fresh research. One may not yet assert that medicine has arrived at the stage of an exact science, but it is surely approaching such a stage.

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PRINCIPLES OF NERVE ACTION.

On December 31, Dr. Albert Matthews, professor of physiological chemistry in the University of Chicago, explained to the American Physiological Society what he has seemingly found to be the fundamental principles of nerve action, which are in brief as follows:

1. Motor nerves contain or consist of a colloidal solution the colloidal particles of which carry positive electrical charges.

2. Nerve protoplasm is stimulated by the passage of the colloidal particles from a condition of a solution to that of gellation, or jellying.

3. This change is brought about by the action of ions, electrically charged atoms or groups of atoms, which bear negative charges. The stimulating action of any chemical compound depends on these negative charges. Those ions (anions) having one charge, are less efficient than those with two or three. In other words, the stimulating action of any ion is proportional to the number of negative charges it bears.

4. The colloidal particles of the nerves are held in solution by positively charged ions, sodium, potassium, calcium, hydrogen, etc., and the effectiveness of these ions in preventing stimulation varies directly with the number of positive charges they bear. A one-charged ion, such as sodium, is less poisonous than a three-charged ion, such as iron.

5. By these facts chemical stimulation is shown to be identical with electrical. Whenever in any part of a nerve negative charges are in excess the nerve is stimulated, that is, the colloids pass from a solution to a jelly. The stimulus always arises at the kathode or negative electrode.

6. The irritability of a nerve is diminished whenever the solution of the colloids is rendered more permanent. It increases as the nerve approaches the gellation state. All postively-charged ions thus diminish irritability, negative increase it. This explains electrotonus, as the irritability of the nerve is increased near the kathode and reduced at the anode.

7. Heat diminishes the irritability of the nerve by rendering the solution more stable; cold increases it by rendering it less stable. At high temperatures gellation takes place and the nerve is stimulated.

8. The nerve is stimulated mechanically because the colloidal particles are forced together. As they coalesce their surface becomes less. Less positive charges can reside on it and part of the negative charges previously induced in the surrounding water are set free and immediately precipitate the next group of colloids.

9. These in their turn set free negatives which precipitate the next group, and so the nerve impulse is carried. Technically these negative changes are called the negative variation, and this stimulates each successive element of the nerve.

10. Anesthetics all dissolve fat. They reduce the irritability of the nerve or protoplasm because the colloids in the nerve are largely fat compounds and more soluble in a mixture of ether and water than in water alone. All anesthetics render the colloidal solution more permanent and prevent gellation.

11. Besides the number of electrical charges in the ions there is some other factor which determines the action of salts. Thus potassium is more effective in reducing irritability than sodium; fluorine is far more effective as a stimulant than chlorine, although all carry only a single charge. It is believed that this difference of efficiency in monovalent anions or kations is dependent upon the rate of rotation of the electron or the positive or negative point-charge about the atom with which it is associated. The electron rotates about the fluorine atom twice as fast as about the chlorine atom.

12. The stimulating action of any anion or the poisonous action of any kation is hence a function, first of the number of charges rotating about the atom; second of the rate of rotation of these charges; and third of the circumference of their orbits.

13. Chemical stimulation is thus, by the electro-magnetic theory of light, shown to be identical with stimulation by light waves. The stimulating action of any anion increases as the spectrum of that anion approaches the ultra-violet.

14. The long light waves and heat waves are in their action like those of the positively-charged ions.

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"All that mankind has done, thought or been is lying as in magic preservation in the pages of books. They are the chosen possession of men."—*Carlyle.*

A STUDY OF BURNS.

Dr. Munson in the *Medical News* of July 26, 1902, tells us that after many years of treating as severe cases as are often seen the author found four negations to be observed in order to obtain perfect results in the treatment of burns.

1. Never use a dry dressing.

2. Never forcibly remove the skin or deeper tissues; prevent their removal if possible. Keep the wound free from pus with a liquid antiseptic, and nature will remove the dead tissue by healthy granulations beneath. The skin is a protection.

3. Never use any oils or salves. If these are used pus will form.

4. Never change dressings too frequently. A perfectly antiseptic liquid dressing will keep the wound clean and odorless; hence change is not necessary.

The earlier a wound is dressed the better for the comfort of the patient, but it can be treated at any stage with equal success. After months of faulty treatment the pus has been seen to disappear in four or five days and a healthy granulation appear, healing perfectly and leaving no scar. If the patient has been in good health previously, constitutional treatment is seldom needed—no stimulants, no catharsis, no sedatives, after the first hypodermic to allay the sensory nerve irritation. Antiseptic dressing prevents further constitutional disturbance.

In individualizing dressings the author mentions first those that should never be used and the reasons why. He never uses oils because they are not antiseptic and do not prevent pus formation. Nitrate of silver and acids often form eschars by breaking down instead of building tissues. Adhesive straps, by pressure, prevent healthy granulation. Above all, carbonate of lead should be avoided because of its poisonous effects. Two brothers who were burned in a gas explosion were so poisoned and disfigured by the lead as to make them hideous. After months of torture both to themselves and the mother who cared for them, their fingers dropped off and their faces were distorted beyond recognition. Another boy burned at the same time, and just as badly, with other treatment recovered without disfigurement. Carbonate of soda and hyrogen dioxid in superficial burns are often useful when one cannot get something better, but they do not vitalize the tissue, and for speedy healing this is very essential.

After witnessing the effects of these and many more the writer has discarded them all, and now uses only glameide, which is found to be a perfect antiseptic and vitalizer; it is the sheet-anchor. It may be that when possible to use it, the pasteboard box may secure protection to the granulations when forming, but in a case recently treated by the author it would be hardly possible to use it. A little girl, two years of age, sat down in a kettle of hot soup just removed from the stove and carelessly placed upon the floor. She was literally cooked from her feet to the epigastric region both front and back, except the knees, which were above the edge of the pot. With nature's ceaseless calls and a two-year-old-child's judgment, the box treatment would have been inexpedient. This child, with no medicine, and only the glameide dressing, was healed and walking about in five weeks. Not a particle of pus formed, notwithstanding the disadvantage of age and location; not an eschar, except a small spot where she broke the granulations during the healing process and caused profuse bleeding.

Munson's method of dressing is, first, to give the patient a hypodermic injection, just enough to allay the intense pain from injury to the terminal sensory nerves. Second, to arrange the bed upon which the patient is to lie. If the body is burned, a piece of rubber tissue is placed on the bed large enough to encircle the body. There are two reasons for this: it prevents evaporation from dressing and wetting of bedclothes. Third, take a piece of absorbent cotton an inch thick and large enough to cover the burn on the body. Fourth, into a platter pour the antiseptic diluted with one-third hot water (the heat is to prevent the chill to the denuded surface); then dipping the cotton carefully into the warm dressing, place it on the rubber. Over this be sure to put some thin and old cotton or gauze, also wet in the dressing, and carefully laid over the cotton to prevent the adherence of cotton to the wound. Lift the patient carefully and lay him upon the dressing; bring the cotton cloth carefully over the wonud, then the saturated cotton, then the oiled silk or rubber tissue, and fasten carefully, snugly but not tight. Wherever the burn is, the treatment is the same until all is covered. Don't put the patient on a hard bed. Keep him comfortably warm.

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

HAIG'S URIC ACID PATHOLOGY.

In the current issue of the GAZETTE will be found a brief review of Prof. Alexander Haig's recent volume, "Diet and Food." Dr. Haig's experiments have pretty effectually demonstrated much that has heretofore been vague and unsettled in the minds of pathologists. He emphasizes the fact, already well known, but not practically and sufficiently appreciated, that uric acid-bearing food is disastrous to the system in two ways; first by the addition of this dangerous systemic poisoning, and second by rendering that produced in the system by natural processes less soluble, and therefore more difficult of elimination. He has further demonstrated the uniformly pernicious effects of a meat dietary in case of rheumatic subjects. All flesh contains uric acid already formed. To feed it to a subject already suffering from an excess of this excrementitious poison is to add coals and kerosene to a fire already too hot.

And yet it is not an uncommon thing for physicians to order an exclusive flesh diet in certain cases of rheumatic indigestion.

Dr. Haig's little work but reiterates the plain teachings of his larger work on uric acid, and his deductions are based not on theory and prejudicial hypothesis but on a vast number of carefully studied cases. Some other articles of food contain uric acid, for example, eggs—a moderate quantity, beans ditto. The acid-free foods are the cereals, milk and all milk products, nearly all vegetables, nuts and all the edible fruits.

The lesson for rheumatics is sufficiently obvious.

The great trouble is that rheumatic patients are generally excessively fond of flesh foods and at the same time are cursed with an uncontrollable appetite. They get into a way of thinking that steaks and roasts "set" better on their stomachs than either starchy foods or vegetables. They lose all will power to resist the constant temptation to overeat, and *they pay the inevitable penalty.*

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THE DRINKER.

THE temperance cause is receiving aid from various directions more calculated to produce good and lasting influence in deterring men from drink, than all the laws in the world.

For instance, we find that American insurance companies are agitating the question whether they shall not follow the example of English companies, and make better rates to abstainers. Many are seriously inclined to adopt such a ruling, which is founded upon sound premises. Statistics prove conclusively that the abstainer has a longer lease on life, he is less exposed to accidents and current diseases, the mechanism of his body undergoes less friction.

The drinker has fewer chances of remunerative employment. Corporations are more and more refusing to fill responsible positions with men who drink. A drinking man is unreliable. Drink leads to the downward path. Men who indulge in this practice are uncertain factors, and are not wanted.

In a variety of the trades the men are learning, for themselves, the dangers of drink. Painters, carpenters, hod carriers, and others whose calling exposes them to certain dangers requiring clear heads to avoid, have learned to let drink alone.

A man who works all day on a swaying platform many feet above ground, or climbs a ladder carrying a heavy load, does not want his faculties befuddled, his balance destroyed, or his limbs made heavy and clumsy by drink.

The abstainer enjoys better health than the drinker. The drinker's appetite is capricious, digestion impaired, nerves on edge. His kidneys are overworked and irritable. The continual passage of urine, inflamed by the agency of alcohol, over the prostate gland, causes swelling and thickening of that organ, which cuts short the period of sexual vigor, and exposes the unfortunate tippler to all the horrors of catheter life. Unquestionably, the man who lets drink alone prolongs the period of sexual activity at least ten years.

The time is coming when men will be led by self-interest and observation of the deleterious effects of drink to let it alone. The doctor can contribute to and hasten this desirable end by pitting his scientific knowledge and professional influence openly and always against the practice. This he owes to mankind as an offset for the irremediable harm done by dead and gone generations of doctors, who were accustomed to sanction the use of spirits as tonics and appetizers.

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THE ARTIFICIAL FEEDING OF INFANTS.

To the *Montreal Medical Journal*, Dr. Blackader contributes a practical paper on this topic. He emphasizes the well recognized fact that it is extremely important that the milk employed in infant feeding be obtained with such careful precautions as to render it practically free from contaminating bacteria. It is not always our good fortune, however, to be able to obtain such with a regularity necessary for the daily preparation of an infant's food, and when the supply cannot be depended upon it appears the lesser of two evils to have the milk Pasteurized at the lowest efficient temperature, viz., from 150° to 175° F. Milk sterilized over 160° F. is altered to an extent varying according to the elevation of the temperature employed and the duration of the exposure, in the following respects: The proteids are modified and rendered less digestible; the combination of the saline ingredients with the proteids appears to some extent to be broken up, and the salts assume a condition in which they are less readily absorbed; the natural ferments whose presence in milk may with much probability be inferred, and which may materially assist its digestion in the infant's stomach, are destroyed; and an alteration takes place in the emulsion normal to milk which may also have a distinct effect in lessening its digestibility by the infant.

Milk obtained in the country from healthy pasture-fed cows, milked in the open fields, certainly is better not sterilized, but milk obtained in the city from more or less unknown sources, and under unknown conditions, should be Pasteurized, especially in summer weather.

The following practical points may be emphasized: An infant fed at the breast, who suffers persistent indigestion and at the same time fails to gain in weight, should be taken from that breast. If, however, the infant gains in weight it is better to try and correct the indigestion by treatment directed both to the mother and child. To attempt artificial feeding in such a case often only adds to our troubles.

In commencing artificial feeding begin with a weak mixture and work up by frequent but slight changes to a point of tolerance. By still continuing a gradual but steady increase, never beyond the point of easy digestibility, we can in a few weeks attain to a food sufficiently nutritious in all its ingredients and yet fully digestible and assimilable. It is a serious mistake to begin on a mixture too strong, and work down after weeks of indigestion to the point of tolerance.

The question how long an infant should be kept on a modified milk diet is an important one. It is generally conceded that by the tenth or twelfth month a child should be able to digest almost pure milk. By this time, however, a mixed dietary is preferred. Milk is very deficient in iron. An infant comes into the world with a high percentage of hemoglobin; this gradually diminishes so long as he is fed on milk alone. Only when a mixed diet is substituted for a pure milk diet does the percentage begin to rise again. Cereals and meat juice and broth are rich in iron.

Oatmeal is amongst the richest in iron of the cereals, and properly cooked forms a useful addition to the infant's dietary. Shortly after the first twelve months eggs lightly cooked may be permitted at one of the meals in the day. The great richness of the yolk in fat, lime salts, and in the organic compounds of phosphorus and iron, makes it a valuable food for the rapidly developing child. At this period, also, food involving somewhat long mastication, such as biscuits and crusts of bread, becomes necessary. The process of mastication develops the maxillary bones and the associated muscles, while disuse of the jaws starves the area supplied by the maxillary arteries, leading to their imperfect development. The bone remains small, the teeth are crowded and imperfectly nourished, and dental caries, so disastrous to the growing child, becomes inevitable.—*Ther. Gazette.*

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"Books are the galleries in which spirits are caught and fastened upon the pages. Books are the storehouses into which facts and principles have been harvested."—*Hillis.*

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THE RELIGION OF NATURE.

By Sir Henry Thompson.

Every breach of nature's laws, whether physical or moral, certainly brings with it punishment in this life, sooner or later. For example, the man who merely consumes improper food or drink, or takes more than he can digest, pays the penalty which the error entails. Again, if he exerts his strength far beyond his powers, as in athletic contests, etc., he runs great risk of injuring his heart and of damaging his constitution as the result; one, indeed, too often met with. If he wastes his health and strength in debauchery, his punishment often speedily arrives, involving disease and shortened life, that possession which every sane man prizes above all others. So with every breach of moral law; any unjust act committed equally involves its penalty in this life. It brings long and bitter remorse in generous natures; in others it surely tends to debase the individual; he becomes habituated to dishonorable designs and acts and sinks lower in the scale of morality, until he loses self-respect, that of others, and at last is trusted by none. No doubt an unprincipled man may have a successful career, but his punishment surely arrives after a time. On the other hand, in every department of life unblemished character is the highest attainment; whatever of talent or of genius a man may display, he who has been proved by a past career to be a possessor of that is the most valued and esteemed in any rank or condition of life, and is the most certain to insure success in the long run.

"I have seen the wicked in great power, and spreading himself like a green bay tree. Yet he passed away, and, lo, he was not: yea, I sought him, but he could not be found. Mark the perfect man and behold the upright; for the end of that man is peace."—Psalm xxxvii, 35-37.

The religion of nature, based upon the determination not to believe anything which is not supported by indubitable evidence, must eventually become the faith of the future; its reception is a question for each man's personal convictions. It is one in which a priestly hierarchy has no place, nor are there any specified formularies of worship.

The result of my labor has at least brought me its own reward, by conferring emancipation from the fetters of all the creeds, and unmistakable confidence in the power, the wisdom and the beneficence which pervade and rule the universe.

"The Unknown God?"

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WHAT IS LIFE AND HEALTH? WHAT IS DISEASE?

WHAT is vital force? What the difference between life and death? Weigh a live man—strike him dead; shed no blood, weigh him again. He weighs no less. Something gone but nothing lost—nothing but life, and life weighs nothing. A world of difference, but scales don't measure it.

Death—life's enemy—acts, must act, upon the same level with life. Health, one of life's attributes, moves in the same sphere. Disease, the enemy of health, can move in no other. Otherwise health, occupying a superior or different plane, could not be attacked by disease. Moving contrary directions upon the same level, they meet, they join battle.

This vital principle becomes deranged. This derangement is induced by another force, subtle and invisible as life, which acts upon the same plane, is also of dynamic quality. Life, health and death being dynamic powers, the force alone that can be active among them, to aid and assist, or hinder and oppose, must be dynamic in character—spiritualized, if you will—but raised from the crude and coarse into a higher sphere.

Two similar seeds planted in the same foot of earth shall send out rootlet and stem so alike that no microscope can detect the difference, that shall develop into two plants elbowing each other for room, watered by the same shower, warmed by the same sunshine, drawing sustenance from the same soil and combining in varying proportions the salts of lime, iron, soda, silica, potash, that shall make of one belladonna, of the other stramonium. Whence comes and where is located this selective power, this elective affinity, this guiding instinct which enables the vital principle, the spirit power, of belladonna, to build around itself its outward visible form, recognizable by a sense as coarse as human vision, and to hide away beyond the ken of human understanding in secret recesses of procreative organs, the ethereal essence, the subtle dynamic and elective individuality that shall propagate and perpetuate its species so long as earth shall furnish food and the sun supply heat?

The belladonna plant is no more belladonna than is man's body the man. It is but the outward expression, the visible semblance of an invisible force, expressing itself in a form that may communicate with its fellows and come in touch with material things.—*T. H. Hudson, M.D., Wichita, Kans.*

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ACTION OF GRAPE JUICE ON THE ORGANISM.

THE grape is composed of various constituents which give it its value in the so-called grape cure. Water, grape sugar, cream of tartar, tartaric and malic acids, albuminoids, various minerals, as potassium salts, lime, magnesia, the oxides of iron and manganese, a little silicum and alumina, also certain acids, phosphoric, sulphuric and nitric. There are traces of chlorides and a small quantity of soda and phosphates. The seeds contain tannin. Grape juice from its constituents is a veritable mineral water. In taking the grape juice cure the quantity at first taken is small and is gradually increased, the length of the time of treatment being from three to six weeks. Walking and exercise in the open air assist very much in bringing about good results during the time of this cure. The general health is improved, the appetite is increased, and the digestive functions are greatly improved. The patient usually puts on flesh. This cure is especially indicated in affections of the digestive organs, visceral congestions, ascites, jaundice, in cases of hepatic calculi, diarrhea, habitual constipation, in certain skin troubles, and in neurasthenia; pulmonary tuberculosis is benefited by this treatment, but the intestines must be in good condition. It seems contraindicated only in persons who are too fat or who have a tendency to become so, and during the period of menstruation.—*Gazette Heb. de Med. et de Chirurg.*

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COMMENTS ON THE BLOOD ORANGE.

Among the great variety of oranges that find their way to our market, few have provoked greater discussion as to its origin than the blood orange. Several years ago I corresponded with the superintendents of a number of the most noted botanical gardens in various parts of the world, asking their opinion as to the origin of the blood orange, but their replies were vague, all assuring me of their ignorance on the subject; but in a conversation with an orange importer, who spent most of his younger days in the orange groves on the island of Sicily, I was assured by him that the blood orange was obtained by crossing the ordinary orange with pomegranate tree. This theory has been discredited by some, but I trust this article may be brought to the attention of some of our orange growers in California who will interest themselves sufficiently in this matter by grafting some of their pomegranate trees with the orange, and demonstrate for themselves and those interested what the result would be; a three or four years' trial would tell the story..

[The blood orange in southern California appears to be a distinct variety. In a five years' residence there I never heard any hint of this pomegranate-cross theory.—Ed. GAZETTE.]

HEALTH AND THE SUNNY SIDE OF THE STREET.

THERE is a vague general impression among the community—more pronounced among the medical profession—that to occupy sunny rooms is favorable to health, but we are not aware that the point has before been investigated in any way quite comparable to that in which Dr. Thayer treats of it in an article published in this issue of the *Journal.* We are under the impression that, other things being equal, a house situated on the north side of a New York cross street is considered a little more valuable than one on the south side. We are speaking, of course, of private houses. This we have always heard attributed largely to the fact that after a snow storm the sidewalk in front of a north side house is more speedily cleared of ice and slush under the influence of sunshine. In a measure it may be due also to the preference for a sunny parlor, a room usually situated in the front of the house. But Dr. Thayer has shown quite clearly, we think, that a great compensation to dwellers on the south side lies in their greater freedom from serious sickness. The difference is not great, indeed, but it is certainly of importance.

It will hardly be questioned that sleeping rooms with a southern exposure are more wholesome than those that look to the north, both because the sunlight that enters them freely is a purifying and vivifying agent of the first magnitude and because the greater warmth of such rooms leads to more frequent opening of the windows belonging to them, whereby they and their inmates are more thoroughly subjected to the action of fresh air. Dr. Thayer infers that the lower death rate of south side houses, as compared with those on the north side of a street is due to the fact that in such houses as predominate in the district studied by him more people sleep in the back than in the front rooms. Such a preponderance of rear sleeping rooms probably exists, and we know of no reason to doubt its relation to the different mortality rates observed by

Dr. Thayer for the respective sides of the cross-town streets. A point that may be of some importance turns on the fact that in general our summer night breeze comes from the south, entering the sleeping rooms that have a southern exposure and enabling the occupants to sleep better than their neighbors on the north.

Out-of-the-way inquiries like Dr. Thayer's are apt to be interesting, even if they do not always lead directly to the establishment of facts having a manifest practical bearing; in this instance, we think, the facts noted may at least serve as the nucleus of a large enough collection to prove of indisputable weight in any consideration of the problems connected with sanitary living. Unless Dr. Thayer's interpretation of them is shown to be fallacious, they must in the meantime be accepted as tending to confirm the general impression that sunlight conduces powerfully to health.—*N. Y. Med. Journal.*

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DIET AS TO PUTRESCIBLE ("PURIN") ELEMENTS.

If we had a complete knowledge of the quantities of exogenous purins in the several articles of diet the physician would be able to regulate at will the nuclein nutrition of his patients, hence the value of investigation of the subject. Under the term "purin bodies," T. Walker Hall (*Brit. Med. Jour.*) includes all the substances containing the nucleus C^2N^4, including, as regards the pathologic possibilities, hypoxanthin, xanthin, uric acid, guanin, adenin, and the methylxanthins.

In this article Hall gives the percentage of purin bodies in different articles of diet. They are specially abundant in glandular substances, sweetbreads probably containing the largest proportion of anything that is commonly ingested; while they are at about the minimum in white bread and certain vegetables. Among the latter, peas, beans, and lentils seem to contain the largest percentages.

SOME QUESTIONS IN HEREDITY.*

By A. Alexander Smith, M.D.
New York.

At the very outset I wish to emphasize the fact that in this paper I have limited myself to certain phases of heredity. The subject is such an extensive one, and can be approached from so many different standpoints, that it would be difficult for one to encompass it entirely. I have, therefore, limited myself largely to that phase of heredity which has a bearing upon our everyday clinical work. I have made no attempt to discuss the subject from the standpoint of the biologists, nor have I touched upon the question of longevity or that of susceptibility to certain kinds of foods or drugs.

Every practitioner of medicine is brought face to face almost daily with questions of heredity, and such questions present always very complicated problems. I think it may be admitted at once that heredity often has a very marked bearing upon disease, both acute and chronic, not only in the susceptibility to the development of such disease, but it has also a bearing upon the questions of tolerance and prognosis.

Since the publication of Koch's paper upon the isolation of the tubercle bacillus, and one might say since the publications of Pasteur at a little earlier period, our ideas upon the influence of heredity have been very decidedly modified. We must recognize at once that many diseases, formerly supposed to be directly transmissible, are now believed to be the results of direct infection. It is possible, and, indeed, not at all unlikely, that still more diseases will be found to be dependent upon infection directly, although hereditary proclivities may have more or less influence.

One thinks at once in connection with heredity of the very marked modification of the views on tuberculosis. Pathologists assert, and seemingly with absolute justification for their assertion, that tuberculosis is not directly an inherited disease, but that it is always the result of infection. We all

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*Read at a meeting of the New York Practitioners' Society, December 5, 1902.—*Medical Record.*

recognize that the most we can say, certainly about *pulmonary* tuberculosis, so far as heredity is concerned, is that the lessened resistance to the attacks of the tubercle bacillus may be inherited. Vulnerability, as it is called, exists perhaps in the tissues. It is not so clear, however, that tuberculosis affecting some other organs of the body is necessarily a direct infection. Take, for example, tuberculosis of the glands, of the skin, of the bones, of the joints, even of other tissues, and it would seem that the last word on the subject had not yet been spoken. Admittedly, the infectious origin in conditions other than pulmonary tuberculosis is not always as easily explained as in the pulmonary variety. The cells of the lungs are less resistant, and the soil seems to be a specially fruitful one for the growth of the tubercle bacillus. But even in pulmonary tuberculosis puzzling questions oftentimes arise.

Congenital tuberculosis is exceedingly rare; a child may be born with the distinct evidence of tuberculosis, but usually one can trace in such cases an infection from the mother while the child was *in utero,* or possibly, in very rare instances, an infection from the genital organs of the father during the life *in utero.* A puzzling question arises in connection with the development of one form or another of tuberculosis; for example, of the gland, joint or bone, in which the parents have shown no evidence of the disease, and yet a grandparent has had tuberculosis in some form.

Another obscure point in connection with tuberculosis is the spontaneous recovery which takes place in a pretty considerable number of cases, in whatever situation the lesion may be, although more readily in some situations than in others. Is such spontaneous recovery due to an inherited tolerance, or is it always due to special circumstances in each individual case, independently of any inherited tolerance? It is often observed in families that certain diseases develop at corresponding periods in the life of parent and offspring. This not infrequently extends through several generations. Tuberculosis is a notable example of this.

The wide-spread prevalence of tuberculosis adds to the difficulty in arriving at definite conclusions, in regard to the part which heredity plays. It is rarely that one can give a history of freedom from the disease in one or other ancestor, either near-by or remote.

Perhaps the next disease one would think of in connection with heredity is gout. This affection has been recognized for many years as one exhibiting hereditary tendencies. It is generally believed that the gouty habit may be hereditary, and that this habit has been brought about by errors in diet, both in eating and in drinking, through many generations. In a large proportion of the instances in which gout can be looked upon as hereditary, the immediate ancestor does not seem to have been alone responsible. Perhaps of all diseases with which we have to deal, the "gouty habit" is the most conspicuous, as having been brought about by a number of generations of such errors. The question is very much complicated by the fact that oftentimes those who inherit the tendency to gout add to it by their habits of life. How often it happens that individuals commit what we consider to be grave errors in diet likely to lead to gout, and yet gout does not develop; on the other hand, the slightest indiscretion in some individuals develops an attack. I do not refer only to gout affecting the joints, but to gout in all of its many and various manifestations. It is recognized that oftentimes gout appears in individuals who have inherited the gouty habit, although their own habits of life are most correct. On the other hand, we do see instances in which the immediate ancestor may transmit the gouty tendency, for not infrequently it happens that the younger members in a family will develop the disease and the older ones escape, because the habits of the immediate ancestor at the time of the birth of these younger ones were such as to lead to the development of the disease. One must not forget, in connection with gout, as with most other diseases, that environment, and the habits of life, other than those of mere eating and drinking, as well as climatic conditions, must all be taken into consideration.

Is rheumatism an inherited disease? Certainly the clinician would answer the question that in a pretty considerable proportion of cases the tendency may be transmitted. It may not necessarily crop out in the form in which it has shown itself in an ancestor, but, in one form or another, rheumatism, or its tendency, must be admitted to be often an inherited condition. I admit that the term rheumatism, as used by the laity, is exceedingly indefinite—a mere muscular pain, a lumbago, a pain in the shoulder; in fact, a pain anywhere is regarded by the laity as rheumatism; but if we question closely we shall find that not infrequently one parent, and perhaps both parents, have been the victims of rheumatism. The recent observations on the infectious origin of acute articular rheumatism, if proven to be correct, would suggest only a transmitted vulnerability, and place it in the same class with many other diseases of transmitted tendencies.

The apprehension that many feel who have lost an ancestor, particularly an immediate one, from cancer, that they will develop the disease, would seem to have some foundation in fact. In many cases of carcinoma an immediate or more remote ancestor has been a victim of the same disease. Those who deny the heredity of cancer would have difficulty in explaining the occurrence of cases in succeeding generations.

The question of heredity in carcinoma has an added interest, from the statistics collected by Dr. Billings. He showed that the longevity in the State of Maine, in proportion to the population, is greater than in any other State in the Union. He likewise showed that carcinoma is more prevalent in that State, relatively to the popuation, than in any other State, and that very many of these cases of carcinoma occurred after seventy years of age. In these cases it would be difficult to show the influence of heredity. It is interesting to note that carcinoma is supposed to be favored by civilization, comfort, and intellectual progress, and this has been offered as an explanation of why carcinoma is on the increase.

Bronchial asthma is another disease in which one so frequently obtains a history of a parent or grandparent having been similarly affected. It is another example of the development of the same disease in both parent and offspring, at about the same period of life. I am familiar with instances in which bronchial asthma has affected one or another member of the family through four generations.

We are often asked the question by patients, "Is cardiac disease inherited?" It is not always easy to give a satisfactory answer to this question, because of the fact that so often the query is made by one who is a victim of cardiac disease, and who knows that one or more of his immediate or remote ancestors suffered from the same disease. It certainly must be recognized that in some families there is a distinct tendency to the development of cardiac disease, either of the endocardial or degenerative form—myocarditis and fatty degeneration. So far as its direct transmissibility is concerned, all one can say is that the underlying conditions which lead to the development of cardiac disease may be transmitted.

We may, perhaps, say the same thing with regard to renal disease. We recognize the fact that there is a tendency in successive generations to the development of renal disease, and yet we cannot say that renal disease is a transmissible affection. We can only fall back upon an inherited tendency. In many families the general pathological character of disease which may affect various members seems to be an heirloom, and cardiac and renal diseases are no exceptions.

Arteriosclerosis is another condition which, in recent years, has been looked upon, in a certain proportion of cases, as showing a distinct hereditary tendency. In the vast majority of instances the conditions which stand in an etiological relation are acquired. When arteriosclerosis develops under forty-five years of age, in a large proportion of cases an hereditary tendency can be traced. Indeed, it is not unusual to be able to trace this tendency through several generations.

In this connection we might refer to a condition of the blood vessels which is looked upon, in many instances, at least, as hereditary. I refer to hæmophilia. In almost all cases of "bleeders" it is probable that, besides a favorable condition of the blood, there is a peculiar condition of the walls of the veins. In many such instances it is possible often to trace the history of such an occurrence in one or more ancestors. Almost all "bleeders" are males, although the mother may have transmitted the tendency, she having received it through a male ancestor. Losser gives the history of the Mendel family: In the first generation of four males, three were 'bleeders." In the second generation of thirteen children of two mothers, six males were "bleeders"; seven females were exempt. In the third generation there was but one "bleeder," and he the son of a mother who was a "non-bleeder." This tendency, like that in many other diseases, may be partially or completely eradicated by marriage with those who are exempt. Breeders of animals and growers of plants have often demonstrated by the study of unfavorable tendencies, and by proper breeding, the possibility of eradicating, or at least partially eradicating, such unfavorable tendencies.

A very interesting, but a very intricate subject, is the relation of heredity to disturbances and diseases of the nervous system. I think all will recognize the neuropathic constitution as hereditarily transmissible. Hysteria, tic douleureux, hemicrania, and other forms of neuralgia, are recognized as existing in successive generations, and even some of the grave forms of nerve disease—for example, epilepsy, idiocy, and various mental aberrations are considered to be influenced by heredity. These diseases may not be transmitted in the form in which they occur in the parent, but that heredity has a direct bearing is recognized by all observers. How often do we hear a patient suffering from hemicrania, for example, make the statement, "It is constitutional; my mother, or father, or a grandparent had it; it is in the family." The neuropathic tendency may not always show itself in the offspring, as it is in the parent, and may manifest itself differently in different members of the family. Thus, it may take the form of a hemicrania in one member, of hysteria in another, of epilepsy in a third, and so on. The precise expression of the neuropathic constitution may vary greatly from mere eccentricity to insanity. Mental derangement, more than any other disease, is an inherited peculiarity, often occurring in a far-back generation, lying dormant, perhaps, through several generations, and then manifesting itself under unusual external agencies, such agencies being merely the means of bringing the tendecies to life.

Is the alcoholic habit directly inherited? Is the craving itself transmitted, or are we to explain the cases of supposed inherited craving on the ground of deficient mental control, or by the fact that in such cases alcohol is an undue stimulant? The periodical drinker is often believed to have inherited his unfortunate habit—shall we call it—and certainly many individuals who are addicted to the use of alcohol make the excuse that they have inherited, at least, the desire for the stimulation from it. The probabilities are that it is a deficient mental control, but this itself may be inherited, and may manifest itself in the desire for the effects of other stimulants than alcohol.

Digestive disturbances are often regarded as inheritances. In our clinical experience we not infrequently are told by a patient that he has "inherited a weak stomach" or "sensitive bowels." There is, apparently, an inherited tendency to digestive disturbances in some individuals, both gastric and intestinal; at all events, there are frequently the same manifestations of digestive derangement in the offspring as have occurred in the parent.

The question of tolerance, when once disease has developed, whether acute or chronic, seems to me to be more or less influenced by heredity. How often it happens, in our observation of an individual who is ill with an acute disease, that if we are to judge by our ordinary standards, the disease will result fatally, and yet how very gravely ill some patients will become and still recover. I cannot look upon it as any other than an influence of the hereditary power of tolerance of acute disease which exists in some persons—indeed, in many persons. Take two of the ordinary diseases as types: pneumonia as a type of the short-duration disease, and typhoid fever as a type of the long-duration disease. How desperately ill a person may become with either one of these diseases and yet recover, while in others, with seemingly as good powers of resistance, the disease terminates fatally. I admit that there are many points to be taken into consideration in connection with such cases, such as the modifications of the progress of the disease by disease in other organs than those affected. We call this inherited tolerance vitality, or we say the patients who recover have good constitutions, and yet I fancy we often mean by these terms an inherited tolerance to acute disease. Again, it not infrequently happens that patients will tolerate for a long time the advancing ravages of chronic disease, although by all the laws of prognosis they should quickly succumb. The surgeons often observe an extreme tolerance in patients with very serious injuries, and not only so, but witness a marked tolerance of certain serious conditions which eventually prove fatal. Take, for example, inoperable carcinoma, or a case in which operation has been refused; how much more prolonged is the tolerance of it in some patients than in others, and that, too, without considering the involvement of surrounding vital organs. Even when moribund, the process of dying occupies a much greater time in some persons than in others. Again, we call this vitality, but I am disposed to look upon it as an indication of inherited tolerance. The prognosis as to time should take into consideration this question of inherited tolerance. Again, in valvular disease of the heart, and in degenerative cardiac disease, without valvular involvement, it is often the experience of everyone of us that it is impossible to make a satisfactory prognosis as to the length of time the patient will live. If we attempt to make a standard we find in the end that we are obliged to take into consideration the individual himself. Even when grave involvement of other organs, secondarily to heart disease, has occurred, how often it happens that some patients will tolerate these conditions for a much longer period than others. Is it not because of an inherited tolerance to serious organic disease?

Racial peculiarities as to heredity have long been recognized. I will mention only one or two instances, and these in connectio with susceptibility. The colored race, in most instances, seems to have very little susceptibility to the micro-organism of yellow fever, but a very high degree of susceptibility to that of tuberculosis and pneumonia, especially if removed from the natural tropical climate to a temperate zone. The Jewish race seems to possess a very high degree of resistance against the tubercle bacillus, but is very susceptible to the causes of neuroses, diabetes, and affections of the skin. The tolerance and want of tolerance seem to be inherited qualities.

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METHOD OF PREVENTING THE CLOUDING OF MOUTH-MIRRORS.

Dr. Paul F. Soudern describes in the *New York Medical Journal* a method of preventing the clouding of laryngoscopes which can also be used in the case of dental mouth-mirrors. The method is thus described: "By means of the finger slightly moistened, apply a film of soap of any brand or kind to the mirror; then rub this off with a clean, dry cloth; the mirror will be as bright and clear as ever; breathing on it will not affect its clearness." The method is certainly a clean one, and the mirrors do not suffer from the operation.—*Medical Brief.*

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THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

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NEW YORK, MARCH, 1903

SELF-POISONING—AUTOINFECTION.

It has been asserted that every human being is at last his own executioner, in that his system is a manufactory or laboratory which is incessantly evolving deadly poisons—animal toxins, ptomains and alkaloids. Under normal conditions of health and habits of living these virulent substances are constantly eliminated by the various emunctories. Whenever the rate of production much exceeds elimination "sickness" is chalked upon the vital bulletin board. When this excess of production reaches a certain limit, varying according to the vital stamina and recuperative power of each individual, the organism is overwhelmed and the man with the scythe puts in his uncanny appearance.

The object of all hygienic rules should therefore be to check the production of the various inimical compounds, and the object of all rational treatment should be to hasten elimination.

Since food materials are frequently transformed into dangerous elements instead of into healthy tissues a standing prescription on the part of rational and discreet practitioners, when called to a case of acute "infection," of whatever form—fever, pneumonia, rheumatism, la grippe or tonsillitis—is, "stop eating."

This checks the most prolific source of the accumulating poisons. The next effort is in the direction of increased elimination, each of the excretory organs being called upon to do its share, or some one of the emunctories is selected to do the brunt of the work. The success of each practitioner in assisting Nature to free the oppressed system and overthrow the enemy depends very largely upon his skill and judgment in selecting the channel or channels through which to accomplish elimination with the greatest promptitude and with the least expenditure—wear and tear—of the already overworked vital forces.

One relies almost entirely on the alimentary canal—catharsis, ignoring the skin, lungs and kidneys. Another looks to the skin only, or to the kidneys, to the exclusion of all the other avenues. Nature uses all these emunctories.

Some systems of medication theoretically ignore all the emunctories, relying upon a reversal of symptoms to bring about curative processes. Others seem to act on the theory that systemic stimulation—usually by alcohol in some form—is all that is required.

All these practices are partial and lack comprehensiveness. Hence they fail in thousands of cases in which they should succeed.

It is always safe to take a hint from Nature, for Nature is never narrow, never has any prejudices, and never sets up any fads.

Concerning these poisonous alkaloids, ptomaines, etc., M. Moulinié thus aptly discourses in a recent number of *La Science Illustree:*

"A false doctrine, long in favor during a great part of the last century, attributed to plants alone the power of producing the alkaloids, those nitrogenized poisons which often have fatal effects on the organism even in slight traces. Owing to this idea, in each medico-legal analysis where a poison of this nature was in evidence, the expert invariably concluded that it had been criminally administered. How many innocent persons paid for this rash and incorrect inference with their lives, we do not know.

"Now . . . . it has been demonstrated that in the course of the putrefaction of the tissues small quantities of alkaloids are formed. The chemical methods of extracting these substances are very complex, the toxic compounds being literally drowned in great quantities of water, ammonia, skatol, indol, etc. The best way is to utilize their solubility in chloroform and the facility with which they form compounds that are soluble with difficulty in platinum chlorid.

"The cadaveric poisons or ptomains are basic bodies having sometimes the odor of putrefaction, sometimes the soft perfume of flowers; they are of the nature of venoms and produce on the organism an action as prompt and violent as the poison of the cobra.

"Their origin is entirely in the putrefaction of albuminoid bodies (albumen, white of egg, gelatine, etc.); putrefied cheese furnishes a similar example.

"These facts explain the numerous cases of poisoning with canned foods, cheese, etc.; the formation of these poisons is prevented by the use of antiseptics, which oppose the development of bacteria—the necessary agents of putrefaction.

"Carrying these researches still further, M. Gauthier has studied the formation of ptomains in the excreta of the living animal. Every one knows the disordered state produced in the living being by the accumulation of matter that should be eliminated. In urine, in the muscles, etc., poisons were isolated, to which the name of leucomains was given. Injected into the veins, these toxic agents have a special action on the nerve centres, producing sleepiness and fatigue—the symptoms observed at the end of a period of high living.

"A tired man is simply poisoned by his leucomains; when these have been eliminated the muscles become supple again. The custom observed by butchers, never to kill a tired animal, is a consequence of the same facts.

"The discovery of the ptomaines and leucomains has thrown new light on the working of the organism; whenever the organs are in pain and work badly, these poisons are forming, and, by their localization in the tissues, give rise to fatigue, cramps and fever, sad companions of all disease."

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MEETING OF MICHIGAN STATE BOARD OF HEALTH.

THE Michigan State Board of Health met in regular session in the Capitol at Lansing, January 9, 1903. The members present were Hon. Frank Wells, President, Lansing; Victor C. Vaughan, M.D., Ann Arbor; Hon. Henry A. Haigh, Detroit; Fred. R. Belknap, M.D., Benton Harbor, and Dr. Henry B. Baker, Secretary, Lansing. This was a very profitable meeting, and much business of importance from a public health standpoint was transacted.

After the auditing of bills and accounts and other routine work had been disposed of, the president called for reports of special committees.

As a delegate of the Board to the meeting of the American Public Health Association at New Orleans in December, Mr. Haigh reported verbally and in writing. He said that the meeting was interesting, and he learned a great deal, and many vital questions, such as water supplies, sewage and garbage disposal, public health legislation, prevention of infantile mortality, consumption, and other diseases were considered. Great interest attached to the discussion of yellow fever, and its transmission by the mosquito. At this meeting the United States Government disclosed the details of the experiments by which it demonstrated that yellow fever is communicated from man to man by a variety of mosquito.

Plans for the Psychopathic Ward at Ann Arbor and for the new Postoffice Building at Michigan Agricultural College were mentioned, but no formal action taken because the plans were not submitted in accordance with law.

President Wells gave a brief address relative to subjects desirable that the Legislature be asked to consider.

Mr. Haigh and Dr. Vaughan, who, in response to requests by civil engineers and others, had been appointed a special committee to draft a bill relative to public water supplies, reported two bills, one by which the State Board of Health should act as an advisory body only, giving its advice to the localities as to what plan should be pursued in supplying a city or village with water, and the best plan for the final disposal of the sewage. The other bill was drafted on the theory that the State Board had plenary powers and absolute control of how a water supply or sewage disposal plant should be installed. This last bill is similar to the law in Massachusetts and Ohio. Both bills were discussed, modifications made, and Mr. Haigh was requested to perfect these bills and endeavor to have them introduced for consideration by the Legislature.

Dr. Vaughan made a report of the special committee on the subject of hydrophobia, and offered the following preamble and resolution, which were adopted:

"Inasmuch as hydrophobia is widely disseminated throughout the State, and many people are being bitten by rabid dogs;

"*Resolved*, That the State Board of Health recommends that municipal and township authorities order the muzzling of all dogs at large, and make and publish regulations to that effect."

A bill to establish a State sanitarium for consumptives was discussed. It was decided that the committee of the Board should confer with a committee of the State Medical Society and perfect a bill to be presented to the Legislature.

A short bill defining the diseases dangerous to the public health was read by the secretary and approved by the Board. Its plan is to have the State Board of Health or some other competent body authorized to decide and publicly declare what diseases are dangerous to the public health under the law.

To properly carry on public health work in localities it is necessary to have a local fund. It is thought that by holding an annual public meeting, very much like the school meeting, an appropriation might be considered and made each year. A bill having this for its object was discussed and referred to a committee to bring the subject to the attention of the Legislature.

Four pamphlets issued by the State Board on the restriction and prevention of consumption, diphtheria, and scarlet fever, and on vaccination and revaccination for the prevention of smallpox were gone over section by section and amended. Eleven thousand copies of each pamphlet were ordered printed, mainly for distribution to neighbors of infected premises.

The State quarantine law was carefully examined and discussed to see if it gave authority for making investigations by the State Communicable Disease Inspector in cases of disputed diagnosis and requests from local Boards of Health for diagnosis by him of cases of smallpox and other diseases. Some of the members of the Board thought that the law did not give sufficient authority, and the subject of having the law amended to cover such cases was referred to the Committee on Needed Legislation.

President Wells presented an extended report of details of the action of the Conference of State and Provincial Boards of North America at its recent meeting, which he attended in the interests of Michigan.

Attorney Wm. F. Davis, former chief clerk in the State Board of Health Office, was granted an embalmer's license, having already passed the prescribed examination. The diploma was given him in recognition of valuable services rendered to the State Board and to embalmers throughout the State by work and study on the subject of embalming and in putting into operation the law and rules of the State Board of Health governing the transportation of the dead.

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"God be thanked for books. They are the voices of the distant and the dead, and make us heirs of the spiritual life of past ages. In the best books great men talk to us, give us their most precious thoughts and pour their souls into ours."—*Channing.*

SPIRITUAL DIGESTION.

Edmund Gosse, in *The Contemporary Review.*

When I was young I had the pleasure of knowing a prominent Plymouth Brother, an intelligent and fanatical old gentleman, into whose house there strayed an attractive volume, which he forbade his grown-up son and daughter to peruse. A day or two later, his children, suddenly entering his library, found him deep in the study of the said dangerous book, and gently upbraided him with doing what he had expressly told them not to do. He replied, with calm good-humor, "Ah, but you see I have a much stronger spiritual digestion than you have." This question of the "spiritual digestion" is one which must always trouble those who are asked to recommend one or another species of reading to an order of undefined readers. Who shall decide what books are and what are not proper to be read? There are some people who can pasture unpoisoned upon the memoirs of Casanova, and others who are disturbed by "The Idyls of the King." They tell me that in Minneapolis "Othello" is considered objectionable; our own great-aunts thought "Jane Eyre" no book for girls. In the vast complicated garden of literature it is always difficult to say where the toxologist comes in, and what distinguishes him from the purveyor of a salutary moral tonic.

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Those of our readers who can manage their own French will be much interested in the January issue of *Archives Provinciales de Chirurgie.* An illustrated paper on his *Osteotome Revolvet,* by Mencier, of Reims, and another on the sterilization of water *"Les Appareils de Sterilization d' Eau,"* and other surgical appliances, are very interesting. The illustrations are notably numerous, and more than ordinarily excellent.

We are glad to announce to the readers of the Gazette that the enterprising medical book-publishing firm of W. B. Saunders & Company of Philadelphia and London have established a branch of their business in New York. For this purpose they have secured a suite of rooms in the Fuller Building, centrally located and easily accessible from all parts of the city. Dr. Reed B. Granger, well-known to the profession of this city, and for many years managing editor of the *New York Medical Journal,* together with a representative who is thoroughly familiar with the methods of the Philadelphia house, will be connected with this new branch; and Mr. W. B. Saunders personally will divide his time between New York and Philadelphia.

It is the intention of the firm to apply to this New York office the same systematic business methods that have proved so successful in the conduct of the Philadelphia and London houses; and we have no doubt that through these three centers, aided by the many other agencies located throughout the country, and by an efficient corps of canvassers representing years of valuable experience, the demand for their publications will be greatly increased.

The Fuller Building is that new architectural wonder erected at the junction of Broadway, Fifth Avenue, and 23rd Streets, and is one of the oddest structures in the world. It is known as the "Flatiron Building," and from the offices of this company, purposely located on the 17th floor, an unobstructed panoramic view of the city can be easily obtained.

Physicians visiting New York are cordially invited by the firm to make these conveniently appointed offices their headquarters, where they can receive and answer their correspondence, catch a birdseye view of the city stretching below them, and where they will always be courteously welcomed.

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THE WEEK'S CROP OF WONDERS.

SINCE our last issue went to press, says the *N. Y. Med. Journal* of January 24, the newspapers have announced no fewer than three astonishing discoveries in medicine. Of a truth, the restless spirit of modern investigation is compressing centuries into weeks, and it almost takes one's breath away to have to pass so rapidly from the consideration of one discovery to that of another. The first of those that have been promulgated during the last week is that of the feasibility of introducing into the circulation enough formic aldehyd to promptly check the deadly work of streptococci without injury to the patient. For this discovery the credit is to be awarded to Dr. Barrows, of New York. It appears that the first case in which the daring expedient was resorted to was one of puerperal septicæmia of such severity that the patient was almost *in articulo mortis.* The solution of formic aldehyd known as formalin (a forty-per-cent. solution of the gas) was diluted with 5,000 parts of water, so that the product was a 0.78 per cent. solution of the gas itself. About a pint of this diluted solution was injected into a vein. The result was a prompt and very decided reduction of the number of streptococci in the blood, together with a most gratifying mitigation of all the symptoms. The injection was repeated in two days, and then the woman was judged to be out of danger.

This is a result that decidedly exceeds the usual effects of the use of anti-streptococcus serum. That it was really brought about by the formic aldehyd, and was not a mere beneficent freak of Nature, seems to be assured by the report of an equally good outcome in another case of septicæmia treated in the same way. We feel warranted in calling Dr. Barrows's procedure a daring one in spite of Maguire's experiments. If Dr. Fortescue-Brickdale's observations, published in the *Lancet* for January 10, had been known to Dr. Barrows at the time, it would have seemed to him still more hazardous. Much as we have justly come to rely upon antiseptic precautions, we can hardly expect that they will always be so thorough as to prevent septic infection; hence a remedy of such rapid and decided curative power as seems to be possessed by formic aldehyd must be hailed as an addition of the first magnitude to our therapeutic resources. It is by all means to be hoped —expected also, we think—that Dr. Barrows's experiment will speedily be confirmed.

The second of the somewhat startling discoveries in question has been made by Dr. Crile, of Cleveland, to the effect that adrenaline (commercially termed adrenalin) is vastly more powerful as a cardiac roborant than had been supposed. It is even reported to have restored to life a dog in which, as the result of an electric shock, all signs of life had disappeared. We presume that it was in conjunction with artificial respiration that the suprarenal product did its work, but this hardly detracts from the wonderful character of its action. Dr. Crile is known as a careful and experienced observer, and we expect his results, too, to meet with confirmation in clinical trials.

Finally we come to the proposal to treat hay fever with an antitoxic serum. This is put forward by Dr. Dunbar, of the Hamburg Hygienic Institute, said to be an American by birth. Dr. Dunbar would apparently restrict the pollen theory of the etiology of the disease to the pollen of certain grasses, particularly rye, and perhaps it is to be inferred that he has discovered a micro-organism that is parasitic on the pollen, for it is difficult to imagine how otherwise he could produce an antitoxin. Preparations of arnica, as is well known, sometimes produce great irritation of the skin to which they are applied, and this fact has been attributed to the plant's being infested with a parasite. It would not be very strange therefore to find other plants infested with pathogenic parasites. We shall look with interest for actual observations bearing on Dr. Dunbar's theory.

LAUGHS AND LAUGHTER.

By B. H. Colegrove.

Speaking of laughs, the most heart-rending laugh is the laugh of the summer girl that shook you, and is gadding around with some other fellow.

The most demoralizing laugh, to the married man, is the laugh of the family doctor when he comes up and slaps the married man on the back and shouts, "It's twins, old man!"

The most grotesque laugh is that of the fat woman, at a picnic, when she's got a pickle in her mouth.

The hollowest laugh is the laugh a man laughs when he sees the necktie his wife has bought him.

The cutest, sweetest little laugh is the laugh of your best girl. It generally costs a couple of theater tickets and a dollar or two hack-hire, though.

The most dangerous laugh is the laugh of a man when he's getting shaved at the barber shop.

The most untimely laugh is that of the boy who is making off in the darkness with the doped watermelon.

The most hilarious laugh is the laugh of the fellow who scoops in the stakes on a jack-high bluff.

One of the most comical laughs is that of a person who's got the hives, where the mouth sticks way out to one side and the nose acts as though it was mad about it.

The most enjoyable laugh is the laugh that's on someone else.

There are countless different kinds of laughter. Some people's laughter is soft and mellifluous like the ripple of a meadow brook or the carol of the first robin of early spring, while other people's laughter reminds you of the screech of an old turkey gobbler, or the wild wail of an asthmatic donkey. A nice, clean-cut honest laugh is worth going a good many rods to hear. Next to having a good laugh all to ourself we like to hear a laugh like that.

Laughter is one of Nature's best medicines and beats pills and bitters out of sight. Laughter brushes down the cobwebs from the ceiling of the brain, dusts up and sweeps out the musty whims and cranky notions and gloomy forebodings, and adorns the chamber of thought with the beautiful picture of hope. When laughter enters the front door, despair scoots up the chimney-flue and remorse flies to the cat-hole. The phantoms of dread commence to dance funny break-downs, and the imps of gloom look like the members of a little German band.

Laughter works on the phrenic nerve which vibrates the diaphragm, thereby agitating the abdominal and thoracic regions, thus tending to establish an equitable blood supply and promoting the normal metabolism of the body.

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"We need to be reminded every day how many are the books of inimitable glory, which, with all our eagerness after reading, we have never taken into our hands. It will astonish most of us to find how much of our very industry is given to the books which have no worth, how often we rake in the litter of the printing press, whilst a crown of gold and rubies is offered in vain."—*F. Harrison.*

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

TO ANNEX MARS AND MAKE MEALS ON AIR.

SUGGESTIONS MADE AT A CONVENTION OF UNIVERSAL REFORMERS.

"To interpret Nature, to untangle Truth, to unfold Humanity" a convention of "advanced thinkers" was recently held at Civic Hall, 128 East Twenty-eighth Street. The hall was crowded with those prepared to put on a common basis all "the health, progress, and reform movements of the United States." It was explained that the object was a harmonious combination of "naturalism, realism, and idealism," the formation of the most gigantic and far-reaching trust in the world—one to include all the virtues in addition to "human rights, freedom, and development."

Edward Earle Puriton, the disciple of naturopathy, or the return to nature, was the first speaker and chairman of the meeting. He said in part:

"Our purpose is to regenerate the world, not to evangelize, heal, or teach. We have outgrown the childish clinging to theology or materialism. We want regeneration, and not the drugs which are the tears of the bleeding plants. Ultimately we shall become very far away from fear, sickness, dread, and death. Sin is ignorance; error, misconception; vice, shortsightedness; envy, ambition disappointed; hate, love inverted; disease, health disregarded, and hell, heaven undeveloped. We believe that the body is literally the temple of the spirit. We believe that man should eat the simplest foods and wear the loosest clothes.

"To untangle truth, I refer largely to the reform movements, that we may get the best out of each. There are scores of specialists all over the country, but the man with the whole truth is not one of them. What we want is the dazzling effulgence of the unfiltered sunlight. There are too many hawkers of colored glass. Some day—maybe 1,000,000,000 years from now—men like you and I will claim superiority to the planets, outshine the sun and the infinitely larger planets that are even now waiting to welcome us. There are thousands of potential Messiahs on earth who have come here with messages they do not deliver because they are in the wrong environment. They have been crushed. The difference between you and Morgan is that he found his lifework. The day will come when we shall laugh at microbes and death. When we have united the reforms of the city, the country, and the nations we may annex Mars. We want schools of discovery, the glory of the soul-marriage, the education of children, and protection against pseudo-healers."

Charles A. Montgomery, of the Vegetarian Society, followed. He asserted that vegetarianism is the basic reform, that the advanced thinker of to-day was called the crank of yesterday, and that it would be perhaps the oxygenarism of ten years hence. Vegetarianism, he said, meant temperance, anti-vaccination, anti-vivisection, cremation, anti-war, and universal peace.

Dr. Charles Brodie Patterson spoke of the mental control of physical conditions. A. L. Leubuscher spoke on "Motomentalism," which he characterized as "movement and mental cures of chronic diseases, rhythmatic health, due to profound respiration, mental suggestion, elimination and assimilation."

"If, when you have cold feet," said Mr. Leubuscher, "you direct your mental attention to your feet, the blood goes there, and if you wiggle them at the same time, the movement of the vital energy is hastened to them. There you have the movement and the mental cure."

The audience had been thinking so profoundly in following the speakers that they were in danger of "sleeping legs" or perhaps "cold feet," so they were invited by the chairman to "stand up and stretch." That they did with real heartiness, like persons who had been awakened from a sound sleep.

When the audience again was seated George Propheter, who at one time is said to have fasted fifty-one days for the benefit of science and his digestion, made an address in which he told his hearers that nature looks on disease as being as natural as health. Methuselah held the record for longevity, and if man would study the growth of plants he might live to be even older.

After several other speakers had given their views Dr. John T. Rich, ninety-two years old, hale and hearty, broad-shouldered, and active, startled the hearers by saying:

"Let's throw out the ideal and get down to the practical. That is, before you put food in your stomach stop and think whether you can digest it. Let us have some ideals, but we should remember our stomachs. I hope I have given you one ideal, and that is, take care of your stomachs."

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"For wise men the joys of reading are life's crowning pleasure. Books are our universities, where souls are the professors. Books are the looms that weave rapidly man's inner garments. Books are the levelers—not by lowering the great, but by lifting up the small."—*Hillis.*

METHODS OF DISINFECTING CARS.*

BY WILLIAM H. PARK, M.D.

MY purpose to-day is to give you simply the results of a little personal work and not to enter fully into the subject of disinfection, for I know that you are all familiar with the ordinary rules and methods.

In railroad cars, which are really moving rooms, we must think not only of the disinfectant that we need, but also why it is needed, whether the organisms are thrown out by the bowels, the skin, or the throat. Of course, a great difficulty here is that we cannot burn up the car and so be safe; nor have a room built for the purpose of thoroughly steaming a car after all the contents have been removed. After all the question is, "What can we do that is practical?" We certainly should try to rid ourselves of the dangers occurring in the street cars and railroad cars from infection, for we can hardly look for the passing away of the infectious diseases. What can we do? There is no use in our making rules to be carried out and not carrying them out. It seems to me that the greatest difficulty to be encountered in fumigating the cars arises from the presence of so many compartments. The upholstery of the cars also adds to the trouble. Another difficulty met with in our endeavors to properly fumigate railroad cars is that the companies want to use the cars so soon again; one of the objections to the present methods of disinfecting cars is that when these methods are properly carried out the cars cannot be used again within twelve or eighteen hours. In the cars there are many openings; the windows are not tight; the ventilators are not tight; and all this adds to the difficulties to be met. I think that the ordinary coaches would be rendered safe if they were first thoroughly cleaned, the floors being swept and dusted, and the upholstery and cushions cleaned with compressed air. The woodwork should finally be wiped off with a solution of bichloride of mercury, 1-1000. Under such treatment I imagine that the car would be as safe as we could make it at the present time. The floors should, especially, be thoroughly cleansed and the woodwork washed with a soda solution, if a consumptive had been a traveler.

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* Read before the Eleventh Annual Meeting of the New York State Association of Railway Surgeons held at the Academy of Medicine, New York City, Nov. 14-15, 1901. Republished from *International Journal of Surgery.*

The closets in our coaches and sleepers have already been dwelt upon, but it does certainly seem to me to be a nuisance to have closets which at one time dump their refuse on the roadbed, where it may wash into some stream the water of which may be used for drinking purposes and at another time must be put out of use to prevent such contamination. Frequently people in the cars have been compelled to go to the closet when the train was waiting in or passing through a city; at such a time they find the closet locked; then they must get up and dress and go outside, or else they must suffer. There should be some other arrangement made so that the traveling public should not be so inconvenienced; such an inconvenient arrangement as now exists should be ruled out by the enactment of some State law, as well as by the railroads who wish to do what they can for the convenience of their patrons. There should be dry earth closets. The open closets should be done away with.

The disinfection of Pullman sleepers is very difficult. There is danger in these cars from the presence of consumptives, or patients suffering from some other transmissible disease, who soil the curtains and woodwork. There is here, certainly, a possibility of the next person in the berth becoming infected, unless thorough disinfection is carried out. So far as I know, unless definite knowledge that a consumptive has occupied the berth is given the company, the ordinary way now is to simply change the linen entirely every day. Certainly that does not clean the curtains or the blankets.

When it is known that consumptives have occupied a car, I think most companies use formaldehyde gas. The methods used to generate the gas are often incorrect so that disinfection is not thorough. We carried on some investigations in cooperation with the New York Central Railroad people some time ago, placing a large quantity of formalin on sheets in the car, allowing it to remain for four hours closed; the curtains were opened out as well as the bedding; the blankets were thrown over the backs of the seats; but we found that here and there the blankets were covered over by something or other, so that in a large percentage of cases the work was not thorough. The colon bacilli placed in bits of paper were not destroyed for the most part. When Dr. R. J. Wilson introduced enough of the disinfectant to destroy the bacilli it was found that such an odor was produced in the passenger cars that they could not be used again for twenty-four hours. It is necessary to have a disinfectant that will leave no odor when the cars are to be used again within a brief time.

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HYGIENE OF WOMAN.

THIS brief editorial notice of a recent French work is so pertinent and timely that we reproduce it from the *Interstate Med. Journal:*

There is no nobler task set before the physician than to teach mankind how to prevent disease. All the grand achievements of modern medicine culminate in prophylaxis. To utilize what we physicians have learned so far in regard to diseases and their causes, to protect the coming generations from untoward influences incidental to life, to liberate them from the clutches of degeneration and to improve the race—this it is that will make the physician, in all truth, the benefactor of mankind. The female sex, in particular, needs the greatest protection. A nation without strong women and healthy mothers cannot ascend—nay, is bound to deteriorate. The comprehension for the urgent necessity of female hygiene ought to become universal among our profession. We find pleas for protection of women and children dispersed in our medical journals and textbooks, and even the *belle literature* and the stage have taken hold of the subject. It is with the greatest appreciation that we have perused a work recently published by two French physicians, Platon and Sepet, entitled "Hygiene de la Femme," which treats the four phases of womankind —childhood, girlhood, motherhood, and old age.

The hygiene of the child begins with her birth. The determination of the sex, in hermaphrodites, is sometimes extremely difficult, and both physician and midwife must bear in mind how momentous the correctness of their judgment is in this matter. The mastitis of the infant, though of common occurrence, demands earnest attention, since the sequele of suppuration, viz., atrophy of the breast, disfiguring scars and retracted nipples, are, in years to come, not only repugnant from an esthetic standpoint, but render the future mother unable to nurse her children. In the advice given on the subject of proper feeding, clothing, cleanliness, vaccination, etc., we constantly find as the dominating idea of the authors the truism that the child is mother to the woman, just as "the child is father to the man."

The child grows older and enters the period of puberty. This wonderful revolution in the girl's body and mind must needs call forth the combined attention of mother, teacher and physician. This is the time of woman's life when so many physical ailments and moral deficiencies originate. In a splendidly written chapter the authors discuss all means that can make the bodies of our daughters strong and their minds healthy—from the choice of appropriate clothing to reading good books; from physical exercises, riding on horseback, swimming and automobilism to attendance at theaters, concerts and balls.

The chapter on indications and contra-indications of marriage is more than a medical essay. It offers the widest social perspective, and the public at large will be greatly benefited by its perusal.

Woman is destined for motherhood—for motherhood by marriage. What hygienic measures does the married woman require? What are the causes of, and how to overcome, sexual frigidity? Why and how must sterility be avoided? All these and numerous other questions are treated with equal detail. The hygiene of pregnancy, parturition and the puerperium are interestingly brought before us. The section on the hygiene of the young mother is instinct with the one sentence: every woman should nurse her child. Lactation renders the woman healthier and stronger. She thus accomplishes her true duties in a strictly physiologic sense. She has borne a child, a part of her own flesh and blood; she must continue to foster it with all her thoughts and all her affection, for "the child needs its mother's love as much as her milk."

And now the third radical change in a woman's life—the menopause. The suggestions of the authors as to the hygiene of this period stand on a par with those in the foregoing chapters, and though they are but a repetition of what we have so often heard and read, they should be attentively considered by the family physicians.

Old age, at last, arrives. After the cares and trials of motherhood, after the recent and frequently severe crisis of the menopause, the hour of rest seems finally to have come. But the *rôle* of woman is, as yet, by no means finished. Replete with experience, her advice will be of benefit to the growing families founded by her children. Let us devote all possible care to the hygiene of the grandmother. By doing this we shall render her cheerful, shall lengthen the last days of her life, and the unavoidable end will be but the rounding out of a complete and useful life.

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A NEW METHOD OF EXTRACTING FOREIGN BODIES FROM THE EAR.

THERE is no more delicate, and even difficult, task, than the extraction, in some cases, of a foreign body which has found its way into the external auditory canal. Irrigation often fails to bring it away, and in certain cases adds to the difficulty by causing the object, a pea for instance, to swell and become more firmly impacted. The employment of instruments is very painful, and requires considerable dexterity, besides supposing an armamentarium specially designed for the purpose, which few practitioners possess. A French physician recommends the use of a piece of soft rubber tube, of a size allowing of its easy introduction, the length of a cigarette. The end is dipped into paraffin and pushed into the canal until it comes into contact with the foreign body, whereupon the operator, applying his mouth to the free end, aspirates forcibly, at the same time throwing back his head. Except in the case of angular bodies of irregular contour the method is usually attended by success, the body coming away with the tube.—*Med. Press and Circular.*

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OXYGEN INHALATIONS.

INHALATIONS of oxygen exert a very favorable effect and can even be life-saving in the dyspnea of heart and lung disease. Nobody who has seen the improvement in the subjective symptoms will doubt the value of oxygen. Besides a good influence on pulse and respiration, there is often an increase in the amount of urine, which is of great value in diseases of the heart. The efficiency of the inhalations can be considerably increased by artificial respiration, especially in case of morphine poisoning. Good effects were also seen in eclampsia and carbon-monoxid intoxication. The poor result obtained by some authors is due not so much to the oxygen as to its faulty method of application. Then, again, not all forms of heart or lung disease are suitable, and the case must be chosen. The effects of oxygen were also studied on animals in poisoning with various drugs. With strychnin, the convulsions developed later and were less severe and of shorter duration, and in some cases were absent altogether. Death occurred much later where the animals were kept in pure oxygen, and the same was seen also when they were poisoned with morphin. Expermients with chloroform showed that the stage of excitement was prolonged and that the narcotic as well as the fatal dose was considerably larger. E. Rogovin (*Zeitschrift für klinische Medicin.*

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DECLINE OF THE APRON.

IT is about forty years since the popularity of the apron began to wane. At that time no woman's wardrobe was complete without an assortment of aprons for all sorts of occasions. A black silk apron was the acme of elegance and propriety, and any nondescript gown could, by the addition of the black silk apron trimmed with a few rows of black velvet ribbon, be dignified and adorned to the utter satisfaction of the wearer.

An apron had rather a wide field of usefulness when you consider that it not only preserved and embellished a new gown, but it also concealed the defects and added dignity to an old one. An apron was always *en regle.* The best dress was kept clean by its use, and the daintiness of it represented all the feminine traits. It was a regular banner of the home. To its strings the children were tied. "Tied to his mother's apron strings!" Contemptuous expression of subordination. And yet so much sentiment attached to it! Whoever was tied to his mother's apron strings was comparatively safe—was in his mother's lead. Mother's apron! The baby rolled in it. Childish tears were dried in it. The little boys used its strings for reins, and the little girls played princess and trailed its ample folds behind them, real ladies in waiting to an imaginary queen.

Those were ante new-woman days. Knitting and needlework were feminine occupations. It was previous to the day of higher education for women. It may sound far fetched to say that home sentiment waned with the decline of the apron. The latter may not have been the cause, but it certainly kept pace with it. I have the written statement of a man to the effect that a snow white apron tied neatly about a trim waist had the power to attack a masculine heart at its most vulnerable point. After that, say there is no sentiment about an apron! But man cherishes sentiment about things of which the feminine mind has no conception, and his heart has been many times ensnared in the muslin bow that tied at the back of his sweetheart's waist this banner of the home. The last was about the man of a generation ago. But the man of to-day has the same sentiment—latent.—*Woman's Home Companion.*

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CAUSE OF CANCER.

A. T. Brand (*Brit. Med. Journal*) regards the infection theory as the only one explaining its origin, ever extending increase and general behavior. The most convincing argument in favor of this theory is the fact that cancer spreads locally by infecting its immediate environment, and is disseminated by the blood and lymph-currents, the latter infecting glands en route. The fact that its favorite sites are places easily accessible to infective germs (55 per cent. occurring in the alimentary canal) suggests that the infective agent is ingested. Other favorite sites are in organs concerned in the reproduction of the species and nutrition of the young. The author calls attention to the inoculability of cancer, as from lip to lip, tongue to gum, etc., and to accidental inoculation in connection with operation, and to the fact that lower animals have been successfully inoculated. We find cancer most rampant where there is poor sewage. The author cites several houses which seemed to be "cancer haunted," but, upon thorough disinfection of the rooms and burning the bedding, no more cases occurred. As to heredity, he considers it improbable that the disease itself can be transmitted.

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TREATMENT OF IVY-POISONING.

Remedies for this infection are about as numerous as for hiccough. They are all to be welcomed; but no one of them proves to be specific, for the reason that every patient's constitutional relation to the influence of the plant is itself specific and demands an antidote accordingly. Perhaps the question of acid or alkaline temperament is the cardinal one in determining the treatment. With this qualification we copy the following as probably a valuable contribution to the treatment of ivy-poison.

Nature is said to have provided a most efficient remedy for poison-ivy poisoning, in the shape of the widely-spread flower known as "spotted touch-me-not," or "Impatiens fulva." It is also called the "jewel-weed," and is very abundant in the water courses during June and July, when the rhus toxicodendron and the rhus venenata are most poisonous. The color of the flower of the "spotted touch-me-not" is a deep orange, and the spots are of a reddish brown. The lips form a sac, not very much unlike the moccasin flower, and it ends in a curved spur. The seed-pods burst if slightly touched, and scatter the seeds all around. To this peculiar property the plant owes its common name. It is also called "noli-me-tangere" and "N'y touchez pas." The remedy is applied by expressing the juice of the plant and applying it to the skin which has been poisoned.—*Pract. Drug.*

IN RE VACCINATION.

Vaccination may arouse to activity the susceptibility to disease slumbering in a child. I once vaccinated a child who, when the virus took, broke out with eczema. But the mother told me all her children were affected in a precisely similar manner when they got their first teeth. This one had no teeth as yet, but the family recognized the eruption as that to be expected. Moreover, smallpox itself was the prime originator of scrofula, and vaccination may well possess in a very slight degree the power of arousing this malady which smallpox possesses in a very great degree.

My views on this subject are based on an experience of 10,000 vaccinations, which I followed up during a period of five years, during which I visited the people four times a year, and had every opportunity to see every result, immediate and remote, that could possibly be saddled upon the vaccination. I would estimate the harm done by it as about one, to the harm it prevented as 10,000. The evidence in favor of vaccination is convincing to every reasonable being; that is, to all except the anti-vaccinationists, whom I do not look upon as reasonable beings.—*Surgical Clinic.*

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TUMORS DESTROYED BY INJECTIONS OF BOILING WATER.

Dr. John A. Wyeth, of this city, gives, in a recent issue of the New York *Medical Journal,* the details of his practical experience during the past two years, and his marked success in treating tumors with injections of boiling water. He promises a more extended report of his work at the next meeting of the American Medical Association, at New Orleans, in May. Dr. Wyeth says:

"The quantity of water employed and the temperature should vary with the size and character of the tumor. In the arterial and venous tumors of large size, the needle is thrust deeply into the mass, and from thirty to sixty minims of water are injected. The needle is then withdrawn from one-half of an inch to an inch, and the operation of injecting the boiling water is continued until the entire tumor is solidified.

"The water should be hot enough to coagulate the blood and the albuminoids of the tissues immediately, but it should not be forced in so extremely hot and under such pressure as to scald and produce a necrosis of the skin."

Three forms of vascular tumors were treated by Dr. Wyeth—the arterial, the capillary, and the venous. In operating on what are known as "mother's marks" on the eyelid, nostril or margin of the lip, he employs a small instrument with a delicate needle. In these cases the water used is a little below the boiling point. Small quantities of water are injected, and the operation is repeated after a week or ten days.

In larger tumors the water is kept at the boiling point while the injections are being made. For this purpose he has devised a long metal instrument, under the barrel of which, while the operation is in progress, a Bunsen burner is held, thus maintaining the high temperature of the water in the barrel of the syringe.

During the treatment the patient is put under the influence of narcotics. Dr. Wyeth adds that in no instance in his experience did any painful symptoms or septic reaction occur.—*Med. Times.*

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COUGHS AND THEIR TREATMENT.

Concerning this pertinent topic, Drs. Alex. De Soto and C. W. Crimpton, of Wayside Mission Hospital, Seattle, Wash., have this to say:

An intractable cough!

What condition so persistently tries the patience of every physician?

Careful examination has been made, the diet regulated and one of the innumerable prescriptions for that ailment selected, but still the cough continues.

Then more investigation, and more careful prescribing; but still, after weeks that familiar cough re-echoes through your waiting room, and you wish Mrs. Smith would change her doctor.

No such good fortune attends you, and that cough haunts you as dismal thoughts of phthisis do your patient, until you are almost determined to advise a change of climate.

Cough is a symptom—varying in intensity and character according to its cause.

Nor is that cause always situated within the respiratory organs themselves.

Cough is essentially a reflex act depending upon an irritation of the respiratory center.

These sources of irritation may be subdivided as follows:

Dropping of mucus from the posterior nares in chronic catarrh.

Polypi, enlarged uvula or tonsils, defective closure of the glottis, irritations within the larynx from whatsoever cause, malignant or otherwise.

Bronchitis, pneumonia and pleurisy.

Gastric, when due to derangements of the stomach.

Cardiac disease, irritations of auditory canal and organic diseases within the abdominal cavity.

From the foregoing causes, it may be readily estimated that to arrive at the exact nature of any given case may not always be an easy matter. Nevertheless, we must relieve the patient, without risk of disturbing either digestive or circulatory systems. Any remedy which will attain this object in a goodly number of cases is indeed a godsend to patient and physician, and in every sense an ideal remedy.

Not until our attention was called to Glyco-heroin (Smith) did we become acquainted with a remedy which we have used with a most unvarying success in coughs of every description, and in patients of all ages and conditions, without the slightest unfavorable effect.

The points which recommend Glyco-heroin (Smith) are:

1. Palatability.

2. Economy (3 to 4 ozs. being ample for a cure of the average case).

3. Its immediate action, soothing the most trying cases.

4. Its absolute freedom from unpleasant or unfavorable effects.

5. It is not only a palliative, but a curative agent.

6. The hyoscyamus it contains reaches those trying cases of dry cough, due to other causes than simple catarrhal irritation of the respiratory tract.

We are convinced that Glyco-heroin (Smith) has no competitors in results, its action being almost specific. It will give satisfaction in every case where results may be reasonably expected, and in many cases its beneficial effects go beyond the most sanguine expectations.

The character of the cases coming to the Wayside Mission Hospital for treatment may be imagined when it is remembered that it is essentially a charity institution; that the vast majority of patients come to us after having tried everything else. These are worthy prospectors and miners, broken in health and pocket by exposure and misfortune.—*Exchange.*

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TIMELY SUGGESTIONS.

Many women are troubled with hair falling out, and cannot afford to go to a professional hairdresser to have it treated. For the benefit of such two excellent recipes are given, which are simple and harmless, as well as helpful.

A nice dressing is made of two quarts of sage tea, strained, two ounces of borax, and half a dozen nails. Let it stand for twenty-four hours before using, then rub the scalp thoroughly with it.

Another, equally good, is made of half a pint of bay rum, half an ounce of borax, and one tablespoonful of salt. Heat until dissolved.

A pomade for whitening the complexion

is made by using equal quantities of seeds from melons, pumpkins, gourds and cucumbers. Peel all the seeds except the cucumbers, and use those before they are hard, mix together and mash fine, adding a little sweet cream to make a paste, with a few drops of oil of lemon. Thin with sweet milk so it can be rubbed on the face, neck, and hands at night. Be sure to wash it all off in the morning.

To check perspiration, get one pound of oak bark, steep it half an hour in two quarts of boiling water; strain and bottle for use. Put two-thirds of a cupful of the lotion in a basin of hot water, three teaspoons of powdered starch, and two teaspoons of powdered borax. Before retiring, and in the morning, bathe affected parts with it. Those persons who are unfortunate enough to have their feet perspire, will find by bathing them with the oak-bark solution it will tend to lessen it. Salt and water is good to harden the feet and prevent profuse perspiration.—*Health.*

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THE TREATMENT OF STIES.

Dr. Henry Dickson Bruns, of New Orleans, in a paper which was read by title at the recent meeting of the Louisiana State Medical Society, deals with the general subject of suppuration of the anterior structure of the eye, that of the lids, the conjunctiva, the cornea, and the iris. Among the suppurative affections of the lids, Dr. Bruns deals with one that the general practitioner would seldom think of referring to the ophthalmologist — the rather commonplace ailment known as a sty.

Dr. Bruns does not go far into the subject of the abortive treatment of hordeolum, judging perhaps that any such undertaking had better be reserved for the specialist; yet it seems as if any well equipped physician might with a fair prospect of success and with no danger of doing harm apply to the minute part at first affected such a germicide as should ward off suppuration. However, Dr. Bruns thinks that sty, once begun, can seldom be aborted, although he says that frequently bathing with very hot water will occasionally bring about such a result, and he adds that, in case it does not, it will give greater relief from pain than any other measure and hasten the pointing of the abscess, "which may then be opened by the patient with a new needle or by the surgeon with some more formidable instrument."

Sties commonly come in successive crops, Dr. Bruns remarks, and their recurrence must be prevented by destroying the pus-producing fungus on which they depend. This may be accomplished by causing the patient to scrub the edges of the closed lids, the lids themselves, the brow, and all the neighboring skin with a solution of mercury bichloride of the strength of 1 to 1000. The solution, he says, should be freshly prepared each time, the scrubbing conscientiously practiced night and morning, and the treatment continued for at least two weeks.

This practice should be accompanied by the removal of any discoverable source of irritation, such as any important lack of muscular balance or error of refraction. "The cure of recurrent sties by proper spectacles," he says, "is a commonplace to every oculist."

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WHY DO NOT THE TEMPERANCE PEOPLE FIGHT THE PATENT MEDICINE ENEMY?

THAT is a question we would like to have any member of the W. C. T. U. or other similar organization answer. If it is admitted that the army-canteen made drunkards, surely the patent-medicine syndicates make a thousand times as many. No one is ignorant of the fact that there are many million dollars' worth of these nostrums sold each year, and that multitudes of people are thus secretly and ignorantly turned into drunkards. Last year a great temperance reformer's portrait and testimonials were blazoned in every yellow journal in the country, extolling the virtues of a nostrum largely made up of alcohol. It was the alcohol in it that gave it its power and that "cured" the temperance reformer. Dr. Bumgardner (Transactions of the Colorado State Medical Society, 1902) says that the following "patent" medicines contain the percentages given of alcohol:

Greene's Nervura	17.2
Hood's Sarsaparilla	18.8
Schenck's Sea-weed Tonic	19.5
Brown's Iron Bitters	19.7
Kaufman's Sulphur Bitters	20.5
Paine's Celery Compound	21.0
Burdock's Blood Bitters	25.2
Ayer's Sarsaparilla	26.2
Warner's Safe Tonic Bitters	35.7
Parker's Tonic	41.6
Hostetter's Stomach Bitters	44.3

Think of a crusade against beer, which contains only from 2 per cent. to 5 per cent. of alcohol, while allowing the free sale of "bitters" containing ten times as much. The "bitters" are stronger than whisky, far stronger than sherry, port, etc., and claret and champagne are far behind.

Is it beyond the truth to say that alcohol causes from one-third to one-half of all the criminals, defectives, insane and dependents which the State is compelled to support? What proportion of these are the products of the patent-medicine syndicates no one can tell. It is surely large. It is only by government protection that the alcoholic nostrum traffic is carried on. This is a profitable business for the syndicates so long as the State will care for their pauperized victims. How long will it continue to do so?—*American Medicine.*

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MEDICAL AND SURGICAL EPIGRAMS.

By Lucien Lofton, A.B., Ph.G., M.D.

The objective point of a doctor's life is the goal wherein disease, dirt or decoys do not exist.

The Latin language may be considered a dead language, but it has saved the lives of thousands.

Without a good helpmeet a doctor's years would miscalculate, for to woman he owes more than to medicine.

The deepest cut sometimes made by a surgeon is with his tongue, for he who cuts with scalpel is amenable to the laws of cure, but he who indiscreetly talks, cuts more deeply than does the sharpest catlin.

The buccinator muscle in some doctors is so splendidly developed that it is not unlike the glutei maximi of a reformed "cop."

The holy friendship existing between some doctors, especially if they represent the same specialty, would make Damon and Pythias holler for rear seats.

There are more sheep in medicine than one would imagine, not that they are often shorn, but that miserable disposition to leap after the other fellow, right or wrong.

Life is never so sweet to anyone as it is to a poor consumptive. There is more genuine cheer in these decaying and tottering frames than all the exotics of frolicsome youth.

Doctors do not always bury their mistakes, try they ever so hard to rid the world of vexatious nondescripts.

The lips of ungrateful patients are always silent as the tomb in the presence of real necessity.

It is just as cheap to secure the services of a scientific man of medicine.

Usually a rebellious patient is the easiest to cure. A man who is sick don't read the riot act often.

Nature suffers many impositions, but her wrath knows no bounds when fully aroused. Even death itself sometimes pays the penalty.

The sturdy druggist does not always wink his eye in the doctor's favor. The American dollar has too much silver in it.

Medicine without its expectations would be one dreary waste, but no man knows what time a green oasis may bob up.—*Alk. Clinic.*

SURGICAL HINTS.

From the International Journal of Surgery.

There would hardly ever be a suit for malpractice if surgeons never made unpleasant remarks about the results of fractures treated by someone else.

Old age and youth should certainly cause caution in operating, but both babes and old people can stand a good deal, and their age should never lead the surgeon to condemn them to death because he is too timid to take his chances.

Unless you count all your instruments before going out for an operation, and again when you repack them in your bag, you will lose a good many, and housewives may for years after delight in a pair of good surgical scissors or epilate their chins with your best thumb forceps.

When a patient has been very badly injured, remember that a condition of buoyant hopefulness is an indication of shock rather than vitality, and do not let it lead you into the idea that the case is one favorable for operation. Count the pulse and investigate the temperature of the skin. The chances will be that heat and stimulation are needed.

It is a mistake to think that, in penetrating wounds of the chest, the lung has not been wounded because there is no difficulty of breathing. As a matter of fact, dyspnea occurs in only about one-third of the cases of penetrating wound of the lung, while it is very frequent in contusions, or as a consequence of fright following upon a sudden injury to the chest walls.

In severe injuries of the head, it is sometimes difficult to distinguish sutures and vascular grooves from fissured fractures, even after careful examination. Wipe the part over carefully with a sponge of absorbent cotton or gauze. The blood lying in a suture or groove may always be wiped away, whereas no amount of rubbing will remove the line of blood effused between fractured bones or separated sutures.

Abscesses and cysts situated in the body of the lower jaw often closely simulate solid tumors, and such swellings should always be opened before removing any portion of the jaw. It has more than once occurred that good surgeons have removed part of the jaw for a tumor that only required perforation and drainage. The bone, even in the case of chronic abscess, seldom becomes so thin as to give the crackling sensation afforded by some abscesses of other bones.

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WELL WORTHY OF YOUR ATTENTION.

At this season of the year the interest of the medical profession in the treatment of inflammations of the respiratory organs is evidenced by the large amount of space devoted to this subject by the medical journals. It would seem that such an exceedingly common-place subject as the ordinary cold, worn almost thread-bare by centuries of discussion, would offer little attraction to the modern physician; yet it is a theme that receives constantly the attention of many of the leaders in medicine. The reason for this can be found in two well-recognized facts. First, that an improperly treated acute inflammation of the respiratory organs is often the precursor of grave pathologic conditions that influence other parts of the body and are difficult if not impossible to permanently overcome. An instance of this is the condition of emphysema that often results from a chronic cough, which in turn leads to dilatation of the heart, with gradually induced changes in the heart muscle. Second—the treatment of acute inflammations of the respiratory tract by the ordinary methods is usually unsatisfactory. That expectorants and cough sedatives are of but little utility is the consensus of the best medical opinion. That they may in a certain limited class of cases be of some value is recognized, but it is also conceded that in the great majority of cases their effects are comparable to that of water on a duck's back. The same may be said of the much-employed cough sedatives of which opium, morphine or some of its derivatives are the most conspicuous examples. It is true that this latter group of agents have a tendency to reduce the frequency and severity of cough, but the principal effects of opium and its derivatives consist of deleterious influence on other physiologic functions. So true is this that the most discriminating of clinicians reserve opium for unusual cases. If a physician would call to the mind the pathologic conditions present in respiratory inflammations it would give a clue to the best method of treatment consistent with the laws of Nature. For instance, in *acute bronchitis*, by far the most common respiratory affection, the mucous membrane is congested, swollen, and, because of disturbance of physiologic function, covered with the products of disordered secretion, *i.e., mucus,* or the products of its decomposition and chemical change. These disordered products act the same as a foreign body in any other part of the body. They produce irritation which manifests itself as cough, and the usual well-known sensations. What more appropriate agent could be applied to this condition of congestion, irritation, hyperesthesia, and abrogation of function than a remedy that is sedative, demulcent, and lubricant? *A priori,* some form of unctuous liquid would seem to be the ideal agent, and Angier's Petroleum Emulsion supplies such an agent, in a pure, palatable and most efficacious form. Aside from the above-mentioned theoretical reasons for the use of petroleum in acute respiratory inflammation, there exists the incontrovertible clinical fact that it has for many years yielded better and quicker results in these cases than any other remedy or combination of drugs known. It is, first of all, entirely free from detrimental influences upon any function or organ of the body. Expectorants, cough syrups, and sedatives have a predilection for irritating the gastric mucous membrane and thereby inducing nausea, oft-times vomiting, and almost always disturbances of digestion. In contrast to this petroleum has a positively sedative influence on the gastro-intestinal tract. If there were no other recommendations for the use of petroleum in respiratory inflammations, the immediate effects of the remedy in affording relief from the bronchial distress, hacking cough and difficult expectoration would entitle it to universal use as a palliative. But it is more than this; there are very few cases of acute inflammation of the bronchi, larynx and pharynx that will not be completely eradicated within a week or so after the administration of this remedy has been begun. Patients always comment upon the comfortable feeling of the throat and chest after they begin to take this elegantly prepared form of petroleum. This means simply that the rawness and soreness due to the congested, irritable condition of the mucous membrane have been overcome by the well-attested sedative, demulcent and lubricant properties of the agent.

Few, if any, acute cases will become chronic if this emulsion is employed as soon as the first symptoms appear; but chronic cases form a large part of the physician's winter work, and are usually intractable and distressing. In chronic bronchitis of the various clinical forms, and particularly in that class designated "winter cough," Petroleum Emulsion has achieved an enviable reputation. Because of its well-mentioned local effects it is of specific value in overcoming the morbid secretory disturbances of the bronchial mucous membrane which constitutes the essential feature of these chronic cases. That it has this effect is proved by the diminution in the frequency and severity of the cough, the change in the character of the expectorated material from a viscid, tenacious mass to a fluid easily expelled, less copius, mucoid material, and the freedom afforded the patient from the subjective symptoms of irritation in the thorax. In elderly people with chronic winter cough of yearly recurrence and of obstinate character, the use of strychnine in combination with petroleum yields results far better than any other method of treatment. Probably not a small element of the success of petroleum in chronic respiratory inflammations is due to the positive character of the remedy as a nutritive. It will be recalled that many of these obstinate cases are associated with or even dependent upon constitutional conditions of malnutrition or general debility. As a nutritive, petroleum is, as authorities of the highest class have proved, far superior to cod liver oil. This fact has been demonstrated beyond a doubt, and is now accepted as one of the established facts of therapeutics.

In view of what the many years' experiences of carefully observant physicians have proved, it may be safely stated that the treatment of both acute and chronic bronchitis and other inflammations of the respiratory tract, will be uniformly satisfactory if Petroleum Emulsion is administered as soon as the condition begins and continued until convalescence is firmly established.—*Exchange.*

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THE BACHELOR DOCTOR.

Marriage is the natural condition of man, and the doctor more than any other man needs the advantage and consolation only to be found in the married estate.

Marriage develops the affectional and responsible side of man's nature, and makes him fitter to discharge his duties to his patients.

The man who has a good wife is better cared for. Her devotion guards his health and his interests untiringly. The married doctor understands women and children better than the bachelor, consequently gets *en rapport* with them easier.

People would rather send for a married doctor than a bachelor. The latter is too much like company. Besides, he is, somehow, on probation. He has given no hostages to fortune; society does not feel exactly sure of him. He may turn out badly without the anchorage of wife and children to give ballast to his character. The bachelor doctor is almost certain to be selfish and superficial, simply from want of thought for others. Home training simply and naturally puts self in the background.

The married doctor has more cares than the bachelor, it is true, but these are more than made up for by the home atmosphere, home comforts, the love of wife and children.

The vast majority of women are economical, and have a turn for management. The doctor will find his means go further in the hands of a good wife. Therefore, do not delay marriage any longer than is absolutely necessary. Do not suppose that luxury is essential to the happiness of a true woman. Give her a chance to be a helpmeet in reality. The day of small things is, for the married pair, often the happiest period of their lives, sweetened, as it must be, by mutual sympathy, confidence and interdependence.

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HYGIENE OF THE FEET.

Says a physician of some eminence: Nearly one-third of the cases of mortality on record may be attributed, directly or indirectly, to ailments induced from insufficient clothing of the feet and legs. One can never be in good health nor do good work if the feet are always cold. If the footwear is not to blame, this symptom indicates a run-down state of the system that needs attention. Long sitting or standing checks the circulation in the limbs and is one cause. If the feet are cold at night, dip them for a moment in cold water, and rub them hard for five minutes and put a woolen covering around them.

Cold feet can often be cured by going

barefoot on the ground, and feet which are habitually cold should, twice a week, be held ten minutes in water as hot as it can be borne; then dash cold water over them; rub and dry them; dress them, and go about your business.—*Medical Brief.*

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ANUSOL SUPPOSITORIES.

The treatment of hemorrhoidal disease has always been exceedingly difficult, because the drugs hitherto used can not be employed in effective concentration without causing violent inflammatory reactions. In Anusol, however, we possess a non-toxic and non-irritating chemical compound of bismuth and iodo-resorcin-sulphonic acid, which produces no narcotic action whatever and is free from any unpleasant by-effects.

The Anusol Suppository acts as a powerful disinfectant, deordorant, desiccant, astringent and granulation-promoting agent, softens and dissolves the contents of the rectum, and effects easy and painless defecation. The accumulated fecal masses are passed in a slimy, porridge-like form, thus obviating the difficult and straining evacuation which so often proves a potent factor in causing severe complications. This peculiar laxative action—possessed by Anusol alone—plays a most important role in the therapeutics of the drug.

The remedy has been employed with excellent effects in hemorrhoids, proctitis, fistula in ano, pruritus ani, vesical irritation in women, pruritus vulvæ, vaginitis, constipation, etc. The inflammatory hyperemia and excessive secretions of wounds, varicose ulcerations, etc., are quickly relieved by rubbing a suppository over the affected parts. In the costiveness of children it is to be preferred to the soap or glycerin suppository on account of its healing and sedative effect; and it may be used in the place of dusting powders or salves.

As the Anusol Suppositories are entirely harmless they may be used in both sexes, at any age, and under all conditions. By reason of their prompt action they will be found to be the most economical means of treating these painful and troublesome rectal affections.

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MOTHER NATURE.

The *Denver Med. Times* says: We read anon of "Mother" Eddy and of a certain "Purple Mother," and other mercenary maternities, but we see little enough in contemporary literature of that great mother from whose breasts flows the milk of life forever. The tawdry artificialities of modern existence canker and consume that near love of Nature which is the essence of all human strength.

"This is the moral of all human tales—
'Tis but the same rehearsal of the past;
First power and then glory, when that fails—
Wealth, vice, corruption, barbarism at last!"

In that resplendent future whose faint dawn now glimmers in the East, when all terrestrial forces shall be harnessed to the will of man, when the sun shall gird the globe with electric force; no longer thrall to prejudice and passion, men and women will turn back to Nature and find contentment. To our children's children the balm of the blue sky, the hearty cheer of sun and wind, the lilt of the bird on the green bough will be life, health and joy. With sound minds in sound bodies, every morning will be to them a lyric, and every season an epic of unalloyed delight.

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A PEN FOR THE BABY.

Little Jack's mother is enjoying a happy freedom from anxious care while about her household duties, knowing Jack is placed where he can injure nothing and nothing can injure him. A convenient safeguard, and which can be folded and stored away when not in use, is made as follows: It is formed of four frames fastened together uprightly, each frame consisting of two posts and three rails. It requires strips of board, two inches wide, cut into twenty pieces of three different lengths. The eight posts are twenty-one inches high, the six side rails are forty-eight inches long, and the six end rails are twenty-three inches long. Any other size may be used, it being necessary to cut the side rails two inches longer than twice the length of the end rails. In making the frames place the top rail even with the top of the posts, and the other two rails below, five inches apart, clear. In putting the frames together, hinge both end frames to the back frame on the inside, so that each can open at an angle of ninety degrees, letting the side rails pass by the end rails. In fastening the front frame fit the side and end rails so that they cannot move up or down and hold in place with hooks. This framework can be moved to any part of the room, and a soft rug spread underneath makes it a comfortable place for the baby, either in winter or summer.

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ANOTHER DIOXID AND OXYGENATOR.

Dr. Friedrich Elias, Berlin, has succeeded in evolving by a chemical process of his own devising, a magnesium dioxide (MgO^2) which he asserts is capable of emitting a large amount of diffusible oxygen throughout the system. This preparation, which is not a synthetic product, occurs as an impalpable white powder, tasteless, colorless, odorless, non-astringent, non-irritant, non-toxic, and insoluble in water. It is said to be free from sodium dioxid and caustic potash—therefore possesses no caustic properties. It is claimed that this preparation will exert beneficial effects in the treatment of diseases arising from deficient oxidation. If magnesium dioxid be as easily absorbed by the capillaries as is stated to be the case by those who have tested it clinically it should prove a therapeutic remedy of much value.—*Med. Record.*

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A LENS REVOLUTIONIZING PHOTOGRAPHY.

Dr. Edward F. Grunn, of Briton, Eng., has discovered a lens which is making possible achievements in rapid work in photography, which have hitherto been thought out of the question. By using a certain oil between the parts of a rectilinear lens, the refraction is so increased that instantaneous photography may be made in the ordinary light of a theater. A photograph is taken at midnight on a pitch black night in 15 minutes. Another is taken at midnight with a fair moon with one minute exposure. A photograph may be taken in a theater, the footlights only being used, in a ¼-second exposure, and one in an ordinary room with an exposure of five seconds. Never before in photographic history has there been a lens so extremely rapid as this.

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Suprarenalin is the astringent, hemostatic and pressor principle of the Suprarenal Glands, prepared by Armour & Company. It is a light yellow, stable, non-toxic, non-hygroscopic crystalline powder, and possesses all the therapeutic properties of the adrenal substance. It is slightly soluble in cold water and alcohol; more so in these solvents when heated. In acids and caustic alkalies it dissolves readily. Suprarenalin Solution (1 : 1000) is a slightly alkaline, stable, non-irritating preparation, that will be found of especial service in minor surgical operations, on account of its great strength and convenience. With the aid of the Suprarenalin Solution, bloodless operations may be performed upon the eye, ear, nose and throat.

The Suprarenalin Solution, on account of its uniformity, stability, and great strength, will be found superior to other preparations of the Suprarenal Substance.—*Exchange.*

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HYGIENE OF CHURCHES.

The Bishop of Fano in North Italy provides for the association of cleanliness with godliness in his instructions to pastors; an example which might well be emulated in religious circles generally. In all churches, after feast days on which unusual numbers of people have congregated, the floors are to be cleansed with a sublimate solution 1-1000. At least once a week pews and confessional benches must be wiped with a damp cloth, and the grating of confessionals washed with lye. The appurtenances of the altar are likewise to be cleansed with lye or sublimate. [Why not ventilate these fashionable charnel-houses at least three or four times a year?—Ed. Gazette.]

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STRANGE EPITAPH IN MORETON.

Here lie the bones of Richard Lawton,
Whose death, alas! was strangely brought on;
Trying one day his corn to mow off,
The razor slipped and cut his toe off.
His toe, or rather what it grew to,
An inflammation quickly flew to,
Which took, alas! to mortifying,
And was the cause of Richard's dying.

MICROBES.

I've had the yaller janders till I looked like butterine;
I've had the fever'n ager till I turned a bluish green;
I've had th' rash an' measles, an' I've had th' varyloid,
I've had th' grip an' shingles, an' a siege o' mean typhoid;
I've had th' wust lumbago that a feller ever had,
I've had syattic rheumatiz, an' had it mighty bad;
I've had them larinjeetuses an' tonsileetus, too,
I've had appendyseetus till they carved me through an' through;
I've had th' mumps an' 'tizzick—w'y they raised me on the croup.
An' many a night in babyhood they thought I'd looped th' loop;
I've had chillblains an' bunions, had sore feet f'm spring t' fall—
Jest trot out sompin I've not had—I-jings I've had 'em all!
An' now comes all th' doctors with a theory nice an' new
That says all these diseases that has tackled me an' you
Is caused by some poor squirmin' thing that gets beneath th' hide
An' never feels quite happy till its boardin' house has died;
They tell us that th' backache an' th' headache an' the blues,
Is hatched by some dumb varmint that's crawlin' round yer flues;
They say that all ye haf t' do t' drive t' ailment off
That makes ye burn or shivr or lay 'wake at night an' cough
Is jest t' kill th' microbe that is doin' all th' dirt,
An' after that ye'll never know that anything had hurt.
I 'spose they're right, for most o' folks that's had their critters fix'd
Is deader than th' microbes—guess th' doctors got 'em mixed.
I'se got a little idee of my own I'm goin' t' spring—
An' this is it: I reckon that this theory that they've got
About th' germs an' creepers, which I think is tommyrot,
Is jest another sample of diseases that has come
From them same little microbes 'bout as big as nothin's thumb.
I reckon that this bug disease that's rulin' all their minds,
About th' little varmints crawlin' underneath our rinds,
Is caused by some fool microbe that has crept inside their skulls
An' won't let loose a minute till they's nothing left but hulls;
An' this theery epidemic that I'm speculatin' 'bout
Is worse'n any other that the docks has figgered out.

—*Exchange.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise." —TISSOT.

Edited by G. H. PATCHEN, M.D.

SOME REMEDIAL EFFECTS OF MOTION AT SLOW AND RAPID RATES.

Although vibration is, in reality, a form of massage, yet, because it is considered by many to be not only a distinct, fundamental form of mechanical treatment, but the very acme of all passive forms of curative manipulations, it is important to know in what manner its effects differ from those produced by what is conceded by everyone to be the regular forms of massage.

Massage is so comprehensive in its processes and effects that it does not admit of a narrow or restricted definition.

The definition given by the standard dictionary is "a system of remedial treatment consisting of manipulating a part or the whole of the body by percussion, etc.," and adds, by way of confirmation and illustration, a sentence from an article on massage by Dr. C. H. Wood, which says "Massage is used, as a generic term, for external manipulations which are employed for the purpose of effecting the muscular and nervous systems and the general circulation."

Foster's Medical Dictionary says, "Massage is the treatment of a member or of the body by stroking, kneading, tapping or beating, or by the application of active or passive motion, by the hands of another person or by a machine."

Schreiber is satisfied that the term "mechanical treatment" sufficiently describes it.

Dowse would define it as "the application of sentient, living matter to sentient living matter, in divers ways, and with an amount of energy in direct ratio with the resistance to be overcome." To my mind, there are serious objections to this definition. It is both too narrow and unscientific. Machines have been invented which, for many purposes, can give massage more effectively than can possibly be done by the hand of any person, however skillful or strong.

The most satisfactory definition I am acquainted with is that given by the late Dr. George H. Taylor in his book on "massage," namely, "Massage is the transmission of energy in the form of motion, or of motion with pressure, from whatever source derived, to the organism or its parts, which energy, blending with physiological processes, shall aid in carrying them forward to perfection; that is, to the condition called health."

This definition is broad enough to include every form of passive manipulation which may be applied for curative purposes, and excludes only those which, by their severity or irrelevancy, invalidate or entirely suppress normal physiological action.

Classification of the various processes employed by massage is necessary only for educational purposes. If the operator knows, as he should, what remedial effect he desires to produce, he will find, or make use of, the processes which will secure it.

Although massage consists of but two simple factors, motion and pressure, these may be combined in such ways as to produce a variety of effects. Increase of pressure with a stated, uniform rate of motion, serves chiefly to bring deeper parts and organs into the field of influence controlled by massage. Increase in the rate of motion. however, the pressure remaining the same, produces results which vary according to the rate of motion employed.

The rate then, at which the different processes of massage is administered determines, more than anything else, the nature of the effect which follows. Rapid vibration is defined as any form of reciprocating, or to and fro motion.

In physics a distinction is made between reciprocating motion at slow and at rapid rates, the former being called oscillation. In a remedial sense vibration means any form of motion which consists of rapid reciprocations. It is, without question, a form of massage.

The difference, in effect, between massage at slow and at rapid rates is greater than a superficial consideration of the subject indicates. Slow motions produce effects chiefly of a mechanical nature. They are normally employed by the system in several departments of bodily activity. They maintain the fluids in motion everywhere—both those within the circulatory vessels and those outside of them. By means of the action of the involuntary muscles they supply the movements of respiration, force the blood through its appointed channels, assist the digestion and assimilation of food, provide for the conveyance of waste, and in short, contribute to the mechanical part of all nutritive acts.

Therefore it is, that slow motions, artificially supplied by massage, are of the greatest remedial service when, for any reason, the bodily processes above mentioned have become defective. Being of the same kind as those which the system naturally employs, they become, in illness, a perfect substitute for the necessary motions which occur in these parts in health.

Another and very important effect of slow massage resides in its power to cause the same change of form in muscle cells and the same disposition of their contents as occurs when muscular action is incited by an impulse which proceeds directly from the will.

This ability on the part of massage to suspend nervous action and become a substitute for it, renders it a remedy of superior value in the treatment of the severer forms of chronic illness. For, while nervous incitation to muscular action results in an expenditure of nervous power which the real invalid can ill afford, mechanical incitation by slow massage gives rise to directly opposite effects; nervous expenditure is prevented, and the power of the muscles is directly increased. Slow massage is, therefore a radical and reliable remedy for overcoming all forms of abnormal nervous activity, together with their numerous and distressing consequences.

An interesting fact in connection with the effect of slow massage is that its application at rates slower than the normal motions of health, *corresponds to emphasis* and increases the effect for which motion is used.

While massage at rapid rates is of equal value with that of slower forms for aiding and promoting the numerous mechanical operations and functions of the system, its distinct and characteristic effect is to quicken and increase all phases of chemical activity required for bodily needs.

This effect of rapid motion is not restricted to the human body. It occurs everywhere throughout nature, as the result of friction, percussion, or of the sudden arrest of the rapid motion of one body by the interposition of another.

The various chemical activities occurring within the body are the result of combinations of complex ingredients, derived from food supplies having more or less affinity for each other, and also for oxygen with which they are destined sooner or later to unite in order that processes necessary for nutrition may be carried on.

The results are two-fold; the development of heat and vital power on the one hand, and completely used or oxidized products on the other.

In chronic ill-health the oxidizing functions are always defective in degree. The natural motions of the body which supply the incentive to chemical action, have become too weak to bring unused, harmful ingredients in contact with oxygen with enough force to secure their destruction and elimination in harmless forms of waste.

Insufficient oxidation has long been recognized as the *real* cause of many forms of disease, and numerous, ingenious attempts have from time to time been made to supply their remedial need by introducing an increased supply of oxygen into the system by artificial means. But these methods always prove more or less disappointing, because none of them are capable of supplying the very thing most needed, namely, that combined physical and chemical action which *will insure the appropriation of oxygen by the parts needing it.* For it is a physiological fact, to which there is no exception, that no matter how much oxygen may be *introduced* into the system, no more will be *used* than that for which a legitimate demand exists in some part of the body.

Rapid massage affords a perfectly reliable remedy for every degree of insufficient oxidation. It not only supplies motion at required rates in the most effective form, but by this very means makes a legitimate demand for larger amounts of oxygen which is promptly supplied in the natural way through the lungs. More important still, as oxygen is always appropriated at any part of the body where chemical action occurs, rapid massage is able to supply this demand, in the most practical and effective manner, by putting it to immediate use.

Inseparably associated with oxidation is elimination. This process is always the *result* of oxidation, and not a substitute for it.

The curative value of elimination has always been keenly appreciated, and remedies capable of producing it in any marked degree have always been eagerly sought. The number, however, which have proved reliable and satisfactory, are very few.

In securing this result, rapid massage makes use of the same kind of means which the system naturally employs for this purpose with the added advantage of intensifying them and making them operative at any selected region.

Rapid massage hastens chemical action between different elements awaiting oxidation, by bringing them into more forcible contact, thereby insuring more perfect chemical union. The intensified chemical energy thus generated, although sufficient to destroy all harmful ingredients, such as uric acid for instance (because such substances possess a low degree of vitality and are therefore more readily subject to chemical change) never proves injurious to healthy organs and tissues; these parts are protected by their own vitality.

One of the most striking effects of rapid motion is the prompt and agreeable manner in which it relieves pain. It does this, not by suppressing the consciousness of pain, after the manner of opiates and nerve sedatives, but abolishes it by restoring to a normal state the disorderly conditions which are responsible for its existence.

When properly applied to nerve centers, rapid massage stimulates in an unapproachable manner the activity of the organs and functions over which these nerve centers preside.

As a remedy for chronic congestion and inflammation, for the removal of local swellings and for the absorption of effusions in any part of the body, rapid massage has no equal. Its only rival is massage at slow rates of motion, and its superiority over the latter consists in the increased chemical changes which it produces in the stagnant fluids, by the way of their purification, and the rapidity with which it secures the desired result.

Such are some of the most prominent and characteristic effects of vibration. It does not encroach upon the field occupied by massage at slow rates of motion, but rather extends its scope and usefulness by adding both to the quantity and quality of its operations.

The only practical hindrance to its beneficial effects is, that apparatus operated by some form of mechanical power, is necessary for its proper administration. But this, thanks to inventive minds of almost every nationality, has already been devised, and the near future, it is to be hoped, will see more and even better ones.

The rate of motion most effective, as determined by clinical experience, should be, for the muscles and circulation, about 1,000 to 1,500 vibrations per minute. For stimulation of nerves and nerve centers, an increased rate, whose minimum is 2,000, and whose maximum is 3,000, and in some cases even 4,000 changes of motion per minute is desirable.

Vibrations produced by the hand are comparatively of little practical benefit, because they cannot be made with sufficient rapidity nor continued long enough to produce the full and much needed remedial effect.

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THE TREATMENT OF LATERAL CURVATURE OF THE SPINE.

Cases of lateral curvature of the spine may be divided, for the purpose of treatment, according to the age of the patient and the cause of the deformity; but the general principles of treatment are the same in all cases. They are, first to overcome any resistance to correction, to train the muscular system to maintain the correction, and to furnish artificial support toward maintaining the correct position of the trunk.

Lateral curvature, due to rachitis, would not require forcible correction, and training of the muscles would be secondary in importance to the mechanical support. Lateral curvature due to paralysis, or collapse of only half of the chest following empyema would properly be treated without forcible correction, but with a combination of such training and support. The larger proportion, however, of cases occur in girls between the ages of twelve and eighteen years, and are due probably to a combination of causes, among which may be mentioned faulty positions in standing and sitting, particularly the latter, and deficient muscular development. It is this class of cases which particularly interest the general practitioner, and which are to be considered in this paper.

A flexible back, *i. e.*, one which can be made to assume a normal outline by manual pressure, combined with voluntary effort by the patient, is the one best suited to treatment by gymnastics alone. A more or less rigid back, which cannot upon examination be made to correct, is one in which forcible correction must be made, and it is more particularly this class of cases which is to be here reconsidered. The treatment consists in the application at intervals of a fixed jacket, forcing and holding at each sitting, as much correction of the curvature of the spine as the patient can bear. After securing complete or nearly complete correction, the fixed jacket is replaced by a removable one, made on a corrected cast, and the process of correction goes on. At this stage the treatment by jacket is supplemented by gymnastics.

There is a pretty general feeling against the use of the plaster jacket which is absolutely unwarranted. It is charged with interfering seriously with respiration and with making injurious pressure upon the muscles. The jacket properly applied finds its support, and makes the greatest pressure upon the crests of the ilia. It absolutely prevents any compression or constriction of the trunk at the waist line, and its pressure upon the chest is over the prominent portions of the chest not covered by muscular strurture, and by correcting the contour of the chest actually increases the lung capacity. The application, if made in a recumbent position, is not attended by discomfort on the part of the patient, and the degree of correction at each sitting is only limited by the skill and strength of the operator.

The removable jacket combines with

these advantages, the fact that it can be removed at night, and that by means of an elastic lacing, the amount of pressure at prominent places can be regulated at will. In the majority of cases, the ideal treatment is daily forcible manual correction, combined with gymnastics and massage. The difficulty lies in the fact that class work is impossible, and that therefore the expense of this treatment makes it prohibitive in many cases.—*George H. Earl, M.D., in the New England Medical Gazette.*

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THE TREATMENT OF SPINAL CURVATURE BY MEDICAL GYMNASTICS.

Spinal curvature is most common among school children. It is caused, among other things, by carelessness in standing, general physical weakness from poor nutrition, or by a cramped position when writing or sewing. It is far more frequent among girls than boys. In lateral curvature, where the muscles on the convex side are weakened and pathologically changed, it is evident that the weakened muscles should be strengthened and developed. Spinal curvature is sometimes inherited; in such cases orthopedic appliances may be used in infancy, but after the age of five years it is perfectly safe to employ medical gymnastics to develop atrophied or weak muscles. Experience has proved that the first stages of curvature may be cured by this treatment. The second stage may be arrested and improved, but the third stage can be only symptomatically treated.

The object of medical gymnastics is to make the spine more flexible, to straighten and stretch the spine, to rectify abnormal conditions of the chest, and to strengthen the whole system. This is accomplished by means of "passive" and "active" movements. According to Dr. F. J. Hartelius, restoration of pathologically changed muscles cannot be produced by mechanical extension, but only by muscular exercises and electricity. But for the restoration of a curved spine he says extension is necessary. The question therefore, is whether or not all this may be affected by the organism's own remedies. This is easy enough to prove. In mild cases of curvature where there is not yet any deformity of the vertebræ, the spine is strengthened at each extension of the back.

In forward trunk flexion and extension, the patient stands with the thighs pressed against a bar; the hands on the hips or neck, *i. e.,* "hips firm" or "neck firm" according to the deformity of the shoulder. The patient bends forward; when he raises himself the gymnast resists him by hand pressure on the prominent shoulder and on the neck. In backward trunk flexion the patient lies on a plinth which supports the front of the patient's legs the trunk being free. The gymnast takes a firm hold of the patient's legs just above the ankles in order to hold them still while the patient raises the back upward and backward.

Another effective movement for the spine is to have the patient in a relaxed sitting position on a stool with "hips firm;" the gymnast places his hand on the crown of the patient's head and resists when the patient raises the trunk to an upright position. These and a few other active and resistive movements can, better than any other mechanical remedy, straighten a curved spine.

In a one-sided curvature with the convexity to the left, lateral trunk flexion to the left may be given. The gymnast places his hand on the highest point of the curve and resists the patient when he bends down. This may be done with the patient either sitting or standing, or lying on his right side; the last one being very powerful. Several other movements may also be given, and should be used according to the strength of the patient and the particular shape of the deformity.—*Otto R. Lofstedt, in the New England Medical Gazette.*

MASSAGE IN NEURASTHENIA.

F. Savary Pearce in the *International Med. Magazine* writes entertainingly upon this subject. He considers this method of treatment one of the most important factors in the cure of neurasthenia. It stimulates the peripheral nervous system, tones up the vasomotor apparatus, develops the muscles and has a soothing influence upon the patient. Five sets of movements are employed, in the following order: (1) Effleurage or gentle stroking; (2) friction, more energetic, to reach the deeper structures; (3) petrissage, a very deep kneading, pushing the subcutaneous tissues against the bones, so as to empty the blood and lymph vessels and carry off unoxidized waste; (4) tapotement, or vibratory tapping, with the hands gently closed as if holding a pen, and (5) effleurage again.

How to Rub a Patient.—First, the subject is required to thoroughly relax all his muscles; then he is placed on his right side and the manipulations are begun on the left foot, toes, ankle, thigh, hip and buttock, in turn, using all the five movements described over each part, varying the time and duration of each in proportion to the size, rigidity and amount of muscle or other soft tissues present. The patient is then asked to turn toward the opposite side, and the right foot, leg, thigh and buttock are rubbed in the same thorough fashion.

Next the left fingers, forearm, arm and shoulder are first given the long, sweeping effleurage, followed again by the rest of the detailed movements described; but the eye has to follow quickly to appreciate the rapid changes, so much a part of the manipulator does the patient become. Four or five minutes will suffice, and the right arm is now taken up. After this we request the patient to lie upon his abdomen with a pillow placed under him for better resistance. The long series of strokings down the vertebral gutters are made alternately with the fingers of each hand spread on either side of the spinous processes. Then comes a series of circular frictions down each recti group with one hand; then a spreading movement from the spines outward with the balls of both thumbs; next a firmer petrissage with both hands; followed by that motion with the palms of both hands alternately run down either side of the spinal column, giving a delightful sensation; while the final effleurage finishes and the patient is requested to turn on the broad of his back, the pillow being removed.

The chest movements consist principally of two; a firm stroking, following the ribs from the sternum out and down; and of firmer petrissage in which the balls of both thumbs play an important rôle and can be so dextrously done as to be not at all painful, which occasionally happens with the beginner.

The abdomen is rubbed as follows (this is very important and difficult to acquire): The thighs are flexed on the abdomen and legs on the thighs in order to relax the anterior abdominal walls. The effleurage is simple enough, but it requires tact to knead thoroughly without tickling. Begin this over the small intestine and work with both hands in a "spanning"-like manner. Then start at the caput coli and work along the ascending, transverse and descending coli, one hand following the other in rotary motions. Again effleurage follows and, as pointed out above, if constipation is an indication to be met, that series of rapid vibrations described will aid much toward the cure. As a rule the face, head and neck are not rubbed in ordinary work. Where specially requested, it is given by a series of strokings and kneading movements in the direction of the venous circulation. It should be stated that in all movements the greater pressure should be from the periphery toward the heart, *i.e., centripetal* in character. The patient is now allowed to have quiet rest or sleep for an hour or more.

Essentials for Good Work.—Some salient points for the masseur are to keep the hands soft, clean, dry and warm. A person with clammy hands makes a bad rubber. The nails should be short.

Duration.—A general rub should last

from one-half to one hour, preferably about 10 A.M., or at bedtime. If electricity is used, give it at the opposite hour. The patient should rest at least three-quarters of an hour afterwards. In orthopedic work a maxim obtains, viz.: "To tighten a loose joint rub easy; to loosen a firmly fixed joint, rub hard and deep." The relation of gymnastics to massage we have only time to hint at; suffice it to say that they are closely allied, and the former are perhaps of greatest value in lateral curvature of the spine and in aiding chest expansion in lung disease. These regulated movements should also be under the observation of a physician.

As to the matter of technique—of course some become more skilled than others; but any person using tact and practice will learn to rub well.

Contraindication to Massage.—It should not be administered for an hour after a meal. Fever is a contraindication to massage. Enlarged and thrombosed veins should not be rubbed, else a great risk of setting up a local active inflammation, or that particles (emboli) may be carried on to some important organ, as the brain, causing paralysis or other serious results. Tumors, especially malignant ones, should not be manipulated for fear of exciting them to more rapid growth and metastasis. If massage is extremely irritating after a fair trial, it should be discontinued. You will in your experience occasionally find the exceptional one in fifty who is made worse by rubbing. In these persons we must resort to gymnastics alone, or to electricity. The pregnant woman should not be rubbed about the abdomen, and it is advisable to abstain from abdominal massage during menstruation and in any form of acute pelvic disease. We have thus pointed out the more important elements in massage and its practical method of application in neurasthenia.

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HOUSEHOLD GYMNASTICS.

Are the exercises of housework, as American women habitually perform them, good gymnastics for the body? This question is asked in *The American Kitchen Magazine* by James Buckham, who answers it in the negative. Housework might give good exercise, he says, if properly regulated, but it does not do so as at present performed. Says Mr. Buckham:

"The writer has watched many women sweep, and he has rarely seen one who did not wield her broom continuously on one side of the body. The ambidextrous sweeper is uncommon. Examine a hundred brooms in daily use, and you will see that ninety-nine of them are worn obliquely across the bottom. The sweeper always holds her broom at the same angle, on the same side of the body. She stoops constantly in the same direction, repeats the same stroke, fatigues the same muscles, and brings pressure to bear upon the same vital organs. The result is lopsidedness. Few habitual sweepers have symmetrical bodies. One shoulder is almost always elevated above the other, besides being more noticeably padded with muscle. The figure gradually acquires a cant toward the side on which the broom is wielded.

"How about the hygiene of the broom? In spite of the utmost precaution—and the average American woman does not take that precaution—a broom will stir up a cloud of fine dust, dust that you can smell and taste, dust that defies all nature's filtering arrangements and penetrates to the remotest cells of the lungs, even the patent carpet-sweeper raises some dust. . . .

"The sweeper's 'weak back' is simply a protest from the kidneys, too much strain and drag on those sensitive organs. There is a distinct transverse strain in the motion of sweeping, a sort of stretching, tearing pull, especially when the broom is habitually wielded on one side. This strain is bad for the kidneys; and the result is that most women who do a good deal of sweeping have chronically weak and aching backs.

"The heart is less directly affected by broom-sweeping than the lungs or kidneys. But most sweepers stoop too much forward, holding the head down, and the resultant compression of the chest walls confines the heart at a time when its action should be most free and unimpeded. And the heart, we know, is also indirectly affected by anything that interferes with the proper functioning of lungs and kidneys."

Washing, as commonly practised, Mr. Buckham tells us, is even worse than sweeping. Bending over a steaming tub, habitually compressing the chest, straining breast and back muscles over the scrubbing board in an unnatural position, and inhaling hot vapors, is decidedly unwholesome exercise. He goes on to say:

"The 'life' of a washerwoman—her expectancy of service, that is—is noticeably brief. Unless she is an exceptionally strong and healthy woman, she will give out in from five to ten years. 'Broken back' is the common complaint. That means abused and diseased kidneys and the beginning of a constitutional break-down. Patent-medicine dealers reap enormous profits from the pitiful endeavors of washerwomen to rid themselves of that terrible ache and weakness in the small of the back. Unquestionably, washing is not good gymnastics.

"Bad, too, are the constrained positions of floor-scrubbing; the strainings and stretchings and tiptoeings of housecleaning and window-washing; the removing and sifting of ashes; the cleaning of sooty stoves and stove-pipes; the feverish toil over ironing-boards, while the blood boils in an unnaturally high temperature, and the feet, legs, and back ache with long standing in one position."

The writer avers that no fair, reasonable, and experienced houseworker can deny the facts as stated by him, and he concludes that housework, for the most part, as American women perform it, is not healthful exercise. He says:

"There are, to be sure, some functions of housework that are physically beneficial, or at least harmless. Bread-making, cooking, dish-washing, bed-making—comparatively light exercises like these are unobjectionable. But the heavier household work, as generally conducted, is physically detrimental.

"It is not to be denied, on the other hand, that our wiser sisters of leisure choose their gymnastics with wisdom and good sense. The scientific results of every exercise are noted and understood, and physical play is regulated accordingly. Promotion of bodily symmetry and of vital function are the results sought and gained. If housework could be revolutionized or regulated in such a way as to have the same ends in view, it might possess some real gymnastic value. There is a chance for very effective reform in the manner of performing the heavier household tasks. The application of scientific principles of physical culture to these tasks, in order that they may be performed in the most healthful and hygienic manner, would be a reform of immense benefit to American women. It is with this end in view that we should seek enlightenment from the physical culturists, instead of ridiculing their practices. For who can deny that they have availed themselves of the right principles of physical culture? If only these same principles could be applied industrially, so that the two birds, of physical development and household economy, might be brought to bag with one stone, what a happy consummation it would be!"—*Literary Digest.*

THE DICK WICK PAPERS.

FROM the banks of the Hassayawha comes the cry of a strong man. The Hon. Dick Wick Hall, editor and manager of our more than esteemed, our beloved contemporary, the *Wickenburg News-Herald,* asks the Wickenburgers to step up to the captain's office and settle. If all Wickenburg, all Mariposa county, all Arizona, don't come up or down with the cash and an apology, then they are unworthy of a journalist and a man whose head is full of brains and whose heart is full of sand.

A large, handsome and intelligent eye, the picture, we love to believe, of one of the Hon. Dick Wick's set, does sentry duty at the head of the editorial columns of his paper. It is a speaking eye. As the leading member of a rebus, it requires the world to "keep your eye on Wickenburg." There needs no such request. The eye of the world is, and of right ought to be, glued on Wickenburg. There is the pillar of a people's hope and there the center of a world's desire. The sole editorial article in the issue of June 14 is called "Who Will Ante?" The brilliancy of the style, the common sense, the courage, the buoyancy and the humor of this article are thoroughly and peculiarly Dickwickian. Mr. Dick Wick reminds his readers that his paper is 11 months old. Therefore he has "taken time by the forelock and done a little figuring in the 11th hour." He will not shut up shop without giving fair notice, so that, after the evil day has come, Wickenburg shall not say, soft, with too late remorse, "Why didn't you let us know?"

Mr. Dick Wick came to Wickenburg a stranger. He founded a paper on his own hook, although a bonus had been offered to anybody who would start a newspaper and advertise the resources of the section. He knew that the field was not rich enough yet to make a self-supporting newspaper possible. But he is an independent sort of chap. So with favors from none and with charity to all, he began; and so he has pegged away for 11 months. What says the balance sheet? How stands the account between Wick and Wickenburg?

"We find, upon going over our books, that it has cost us to run the *News-Herald* over and above our receipts during the first 11 months, the sum of $2,672.60; in other words, we have lost $2,672.60 since July 13, 1901, by endeavoring to advertise the mineral resources of the Wickenburg section through the *News-Herald*. If we have done this district and the people and companies interested hereabouts that amount of good, more than what has already been paid us on subscription and advertising, some one owes us $2,672.60. If we haven't helped the entire section that amount, we are loser—and wiser."

Even in the pangs of financial distress, the mathematician, the accountant, is merged in the philosopher. It is well, for Wickenburg is a town of scant bowels. It has given Mr. Dick Wick little job printing. "About one-half of our subscribers are in arrears." The display advertising is the only isle of bliss in that sea of troubles. "With the exception of a few business houses in Wickenburg which are so dead and unimportant that to mention them would be sacrilegious," the Wickenburg business men have advertised liberally and even the merchants of Prescott and Phœnix have appreciated and employed Mr. Dick Wick's columns. The real offenders are the mine operators around Wickenburg. Out of 30 mining corporations and many times 30 individual owners of mining property, only four have paid him a cent. Yet he has advertised the district and the mines to the tune of four and five columns a week. The sons of Belial take and will not give! Now for a plain business talk:

"For the past 11 months in this game of 'help your district,' we have been 'going it blind' until the game has cost us nearly $3,000. The time has now come when the people and companies who have been getting the benefit must make a showing and ante. If they don't, the game will have to close and our only satisfaction will be the knowledge that we have been trying to help people who would not help themselves. But we trust this will not be the case. We hope that the people of Wickenburg and those interested here, when they know what we have done, will see to it that the *News-Herald* does not suspend or deteriorate into a four-column patent inside, boilerplate, colic, cholera and diarrhœa sheet, such as are being published in many towns of twice the size of Wickenburg."

While Mr. Dick Wick is its editor, the *News-Herald* can never sink to the degradation which he paints so vividly. But his townsmen and the callous mining operators should stand by him. He asks those who have received the benefit of his labor to share the loss. Outstanding bills to the amount of $1,700 must be met soon. See how modest he is:

"If you cannot do anything else, subscribe for the paper, and pay your subscription. If you haven't even the two dollars, never mind—we haven't either, so come in or write and subscribe anyway, and if you think we are doing the district any good, say so. We like to know how we stand with the people."

They must be queer people if a man so energetic and cheerful has to pass the hat among them. Hear his last appeal, in which humor and a good conscience make mouths at necessity. Hear, most of all, a poem which is worth a thousand times more than all the works of a hundred thousand Alfred Austins and Sir Lewis Morrises:

"Whatever you do, do it soon. We need paper and we need ink, and we are owing for some now that you have already had, and we do not know at what minute our landlady may decide to quit feeding us on credit, and it would hardly look well for the editor of the local paper to be seen walking out of this rich mining district, poor and hungry.

"The past ten months serve to remind us
Editors don't stand a chance;
The more we work we find behind us
Bigger patches on our pants.
"Then let each one show how they like us
Send what you can to Dick Wick Hall,
Or when the fall winds come to strike us
We won't have no pants at all."

Shall Dick Wick face a cold world and winter in his drawers?

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FEW WORDS NECESSARY.

A story shedding new light on the character of General Robert E. Lee has been unearthed by Mr. Carter R. Bishop, of Petersburg, Virginia. Some correspondence relating to the military affairs of the Confederacy recently came into the possession of A. P. Hill Camp, Confederate Veterans, of which Mr. Bishop is adjutant. During the fighting in and about Petersburg the case of Private Nelson Eams, Fifth Virginia Cavalry,was brought to the attention of the authorities. Eams stammered badly, and for this reason was regarded as unfit for active service. Following is the official correspondence, with the endorsements relating thereto:

"PETERSBURG, November 22, 1862.

"This is to certify that I have attended Private Nelson Eams for some time and have known him for some years. He *stutters very badly* and I think makes a poor soldier—unfit for active service.

"JOHN H. CLAIBORNE, Surgeon."

Next comes a recommendation from the Quartermaster's Department:

"QUARTERMASTER'S DEPARTMENT,
"PETERSBURG, November 27, 1862.

"Respectfully forwarded to General G. W. Smith, Richmond, with the request that Private Nelson Eames, Company K, Fifth Virginia Cavalry, be detailed to serve as teamster in my department. Surgeon Claiborne states he *stutters very badly*. He will, however, answer as a teamster.

"E. B. BRANCH, A.Q.M."

Following is General Lee's disposition of the case:

"HEAD-QUARTERS,
"FREDERICKSBURG, November 30, 1862.

"Respectfully returned, disapproved. A soldier requires but few words in the discharge of his duty.

"R. E. LEE, General."
—*Lippincott's*

ISN'T THIS FUNNY?

Here is the strangest thing in the world, says the *Wichita Eagle.* Local item from Kingman paper: "A. J. Bittner went to Wichita yesterday to consult a specialist in regard to his eyes." Local item from Wichita paper: "K. L. Brown left yesterday for Chicago to take treatment from an eye specialist there. He fears he may lose his sight." Local item from Chicago paper: "R. J. Beaver, president of the Sixth Street National Bank, of this city, left yesterday for New York to have Prof. J. Agnew, the famous New York specialist on the eye, treat his eyes, which have been troubling him." Local from a New York paper: "J. Peter Stuyvesant, of Fifth Avenue, sailed yesterday for London, where he will be under treatment for the eyes by S. J. C. Kavenaugh, S. N. A. B." Local from a London paper: "The Right Hon. Percy Fitzhugh Bighton is sojourning in Paris, under the treatment of the great oculist, Lemaitre Trebon."—*Osteopathic Success.*

* *

THE SELF-SUSTAINING PRODIGAL.

They had waited a long time for the return of the prodigal. At last he came. After appropriate greetings, his father said, rather sadly for so glad an occasion:

"My son, I'm very sorry, but we have no fatted calf to mark your return. Neither can I afford to buy one, having of late fallen upon evil days."

"I feared as much," replied the son, "so I stopped at the drover's on my way up and ordered the best fatted calf he had. There it comes now," and on looking out they beheld two strong butcher men struggling in with the largest and fattest calf they had ever seen.

This fable, simple though it may be, shows how even a prodigal may succeed by the strict application of modern business methods.—H. C., in *Lippincott.*

A JOB'S COMFORTER.

"I dunno what in de roun' worl' make you so onsatisfied," said Brother Dickey to a former member of his congregation. "You lives in de country, don't you?"

"Yes."

"De coal strike don't hu't you?"

"Oh, no."

"You gits yo' wood free?"

"Ever' bit."

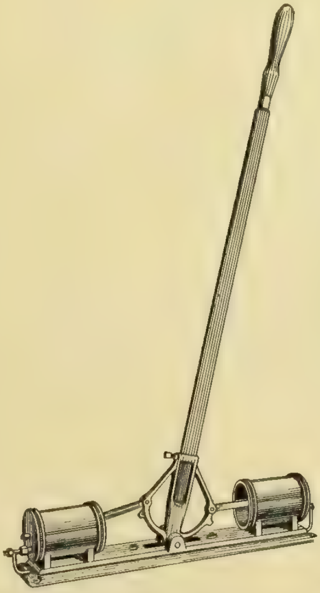
"Sheriff don't level on you mo' dan onct a year?"

"Dat's all."

"Well, den, what you got ter growl 'bout? Go home en keep warm, en trust in Providence 'twell you's runned over by a railroad, or lynched by yo' friends!"—*Atlanta Constitution.*

* *

A NEW AIR PUMP.



Dr. H. M. Dunlap, who, several years ago, introduced the "vapor massage" treatment, which has proven so successful in affections of the ears, nose, throat and lungs, has recently perfected a new air pump, which physicians pronounce a great success.

This new pump employs a principle of compound leverage which, though very simple, affords remarkable ease of operation, even in a pump of large capacity, accomplishing equal results in the same length of time with less than one-third the effort required by the ordinary double cylinder lever pump.

Every physician who uses or contemplates using compressed air will be interested in this pump, as shown in accompanying cut. It is made by the Globe Manufacturing Co., of Battle Creek, Mich., who also manufacture the well-known "Globe" nebulizers, multi-nebulizers and compressed air apparatus, and who enjoy a reputation for turning out first-class goods only.

For full information concerning this new pump write the manufacturers as above.

THE KIDNEYS.

Save your kidneys by avoiding constipation.

High living is the kidney's hell.
Malaria makes much Bright's disease.
Scarlet fever hits the kidney hard.
When the urine is red the kidney is sore.
Milk is the kidney's friend.
An over-full bladder hurts the kidneys.

C. E. Boynton, M.D.

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OTTO'S AUTOMOBILE.

'Tis strange how fashion makes us change the objects we admire;
We used to sing the tireless steed, but now the steedless tire.
So Otto bought an auto, so as not to be antique,
But the thing was autocratic,
As well as automatic,
And the auto wouldn't auto as it ought to, so to speak.
He thought to get an auto operator for the work,
And first he tried a circus man and then he tried a Turk.
For he knew the circus man drove fifty horses with success.
And if a man be shifty
Enough to manage fifty,
It's palpable enough he ought to manage one horse less.

As for the Turk, 'tis also plain, deny it if you can,
He ought to run an auto, since a Turk's an Ottoman.
'Twas all no use, so Otto moved to Alabama purely
That he might say: "I'm Otto,
From Mobile, and my motto,
'A Mobile Otto ought to run an automobile surely.'"

Then Otto sought to auto on the auto as he ought to.
But the auto sought to auto as Otto never thought to.
So Otto he got hot, O, very hot! as he ought not to.
And Otto said, "This auto ought to auto and it's got to."
And Otto fought the auto, and the auto it fought Otto,
Till the auto also got too hot to auto as it ought to,
And then, Great Scott! the auto shot to heaven—so did Otto—
Where Otto's auto autos now as Otto's auto ought to.

—*The Smart Set.*

Book Reviews.

Diet and Food, Considered in Relation to Strength and Power of Endurance, Training and Athletics. By Alexander Haig, M.A., M.D., Oxon., F.R.C.P. Fourth edition, with seven illustrations. Philadelphia, P. Blakiston's Son & Co., 1902. Price, $1.00.

In this modest little 12mo. of only 127 pages Dr. Haig has condensed a world of sense on this most vital of all the subjects now before the profession and the world.

What shall we eat if we would avoid disease? What shall we eat if we would recover from those serious ailments which so easily beset us and which have their origin very largely in dietetic sins or dietetic ignorance?

These are the questions that are racking thousands of minds and the practical answer to which is making or marring millions of lives.

Dr. Haig strikes the keynote in his preface: "Diet as at present used, is often the product of a vast amount of ignorance; it is the cause of a hideous waste of time and money; it produces mental and moral obliquities, destroys health and shortens life, and generally quite fails to fulfil its proper purpose.

"It is my object in the following pages to show that it can be easily made to fulfil its proper purpose, and that with even a partial removal of the ignorance that surrounds it, the waste of time and money may be prevented, and the dangers to life and health avoided."

We will, in a future number of the Gazette, quote from this valuable work.

The Origin of the Family, Private Property and the State. By Frederic Engels, Translated by Ernest Unterman. Chicago: Charles H. Kerr & Company, 1902.

This little volume treats of a subject very little considered in the mad rush of modern days, yet a subject which underlies and gauges all human effort.

Civilization hinges upon the family, and when the families of a nation recede, decay or lose their integrity and moral character the nation is on the high road to dismemberment and dissolution.

This little manual throws a flood of light upon the gradual rise of the race from a condition of savagery to its present advanced but by no means ideal condition. Those who are interested in the study of human history and human character will find in this unpretentious volume a storehouse of race-knowledge, and fundamental food for thought in connection with all the social and industrial questions that are now pressing for a more enlightened solution.

Maternity Without Suffering. By Mrs. Emma F. Angell Drake, M.D. Philadelphia, Pa.: The Vir Publishing Company, 1902.

Not long since several young women belonging to the senior class of one of our leading institutions of learning, women who expected to marry as soon as they had finished their educational courses, made bold to interview a revered and prominent teacher of their own sex and asked her: "Why are we not taught, among all the branches that occupy our time for four years, something which will fit us for the high responsibilities of wifehood and motherhood?"

This book, together with another volume by the same author, is intended to make such an inquiry unnecessary. Mrs. Drake has spoken well.

American Communities. Revised Edition, Enlarged to Include Additional Societies, New and Old, Communistic, Semi-Communistic and Co-Operative. By William Alfred Hinds, Ph.B. Chicago: Charles H. Kerr & Company, 1902.

To those of our readers who would pursue the subject of the progress and ultimate destiny of civilization into the realm of modern details and familiarize themselves with the practical results of socialistic communistic and co-operative experiments in this country this volume will prove both interesting and satisfactory. It traces every movement of this kind of any note, giving its failures as well as successes, and ably discusses the causes of failure as well. The author firmly believes in communism as the ultimate basis of society, but cautions all against "ill-considered and ill-conducted social experiments."

SPECTACLES AND EYEGLASSES. Their forms, mounting and proper adjustment. By R. J. Phillips, M.D., Ophthalmologist Presbyterian Orphanage, late Adjunct Professor Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine, etc. Third Edition, Revised. With 52 illustrations. Philadelphia, P. Blakiston's Son & Co., 1902.

The country physician frequently has to officiate as both oculist and optician. For this service he is rarely well equipped. Nor does his library supply him with much that can be called helpful guidance.

Dr. Phillips seems to have had this class in mind when he prepared his little manual. In about one hundred pages it includes careful and understandable instructions which will enable the novice to care for the failing vision and imperfect optics of his patrons. It teaches not only definite rules for accurate lens-prescribing, but also lays stress on the correct adjustment of the glasses after the right lenses have been selected. This is quite as important as right prescribing.

That the book has reached a third edition is evidence that it is appreciated by the profession.

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POINTS.

To get a long well, begin at the top and dig down.

Fall openings make a hole in a married man's pocket.

It's a wise worm that turns in before the early bird turns out.

Notes and Queries.

Query 128. Has the special and much lauded practice of Dr. Lorenz, in this country, been so really wonderful and altogether new to American surgeons as the current newspaper buncombe would indicate? G. L. F., Ark.

Answer.—Dr. Lorenz is a surgeon of acknowledged and quite uncommon skill, and a gentleman of generous motives and, so far as we know, of unblemished character. He has taught his confreres at home, and now the profession of America, if they care to heed it, a valuable object lesson, in his example of remarkable physical development, long and patient training, and professional modesty and unselfishness. We are sorry to have to confess that we would be at a loss to point out an American surgeon who would have conducted himself abroad, under similar conditions and temptations, with equal decorum and unselfishness. Instead of turning his countless opportunities for accumulating a fat bank account, by accepting any sum he cared to name, from wealthy people who desired his skill in behalf of some afflicted member of their families, he operated, in preference, on the children of poor people, who were neither expected nor permitted to make him any remuneration. Evidently, had he been mercenarily inclined, he could have left this country with half a million dollars, instead of with the single large fee paid him by a Chicago millionaire, and a few more of moderate amount. His successes were the result of a combination of skill, courage and rugged muscular strength. This combination is no doubt partly a birthright, but largely a result of his personal application and his clean physical habits.

But that his methods are entirely new to American surgeons is a popular misapprehension. No doubt he has been singularly successful in some extreme cases, in which American surgeons would have hesitated to operate, because of a lack of two of his qualities—courage and brawn! Had he not been an athlete, all his skill and courage would have been, in these particular cases, unavailing.

Dr. Lorenz himself will not deny the fact that he is indebted to an American surgeon for one of the essential features of his treatment—the plaster bandage or splint. Without this as an after-treatment, his practice would not only be ineffective, it would be impossible. He has both attempted and accomplished results never before attempted by his colleagues or predecessors; but his originality consists more in daring and in thoroughly developed physical power than in absolutely new methods. No weakling or dress parade surgeon, who neglects his gymnasium and fritters away his normal vigor in social dissipation or club indulgences, can ever hope to compete with or imitate Prof. Lorenz' fairly wonderful manipulations. The physically well-developed student of orthopedic surgery who will strenuously emulate the athletic culture and abstemious habits of this frugal-minded Austrian, who has legitimately won his honors and emoluments, can indulge a reasonable hope of one day being able to repeat or even excel any surgical feat that Dr. Lorenz has undertaken.

Query 129. One might infer from the partial descriptions of Dr. Topham's Electrical device that it is the only one that evolves any really "high tension" current. Did you intend to be so understood?

I am very much interested in the subject of therapeutic electricity, which I believe is yet in its infancy. M. S. B., Mo.

Answer.—By no means. Many other instruments brought out within the last decade base their claims for excellence on their success in evolving and utilizing "high tension" currents. Among the latest may be mentioned a static machine whose revolving plates are of mica and another in which they are composed of amber. The mere production of these remarkable currents is not the difficult part of the matter. It is the control and adaptation of them after they are produced; and furthermore they all differ relatively from each other.

As to the high tension feature of his machine Dr. Topham claims that the current evoked by his apparatus has never been accurately measured as to voltage, for the reason that no voltmeter has yet been devised that is capable of gauging or indicating a tension exceeding 600,000 volts, which is equivalent to asserting that the voltage of his current exceeds that figure! The important fact in connection with them is the quality or character of the current generated, which seems to be determined first by the number of volts, and next by the number of amperes associated with it. The volt meter possessing the greatest capacity measures but 600,000 volts. Any higher voltage than this must be computed by what is known as the "spark-gap." This is done by measuring the length of spark produced by some known tension of less than the above number of volts, which thus approximately measured shows that a current can be generated in which the voltage reaches into the millions. This is really an incomprehensible tension or voltage, and absolves such a current from obeying any of the traditional laws that govern the manipulation of ordinary electricity. Our understanding of Dr. Topham's claim for his apparatus is that it generates a current in which there is such a fine adjustment of amperage to an exceedingly high voltage that while it is perfectly safe it is capable of imparting vigor to the human system. This he undertakes to demonstrate by means of the "vitality meter" he described in the February GAZETTE.

Query 130. What is the best diet for children born of tuberculous parents or with a tuberculous tendency? C. A. M., Georgia.

Answer.—There are no absolutely "best" diets for any class of diseases or diatheses. For all diseases and conditions, that diet is best which digests best and nourishes best. This varies with individual idiosyncrasies, environment, temperament, occupation and physical habits. There is no universal law of diet that is applicable to all classes, regardless of the peculiarities mentioned. In a general way, exclusiveness should be avoided, and the special wants of the individual system from time to time carefully studied. Every subject requires a sufficiency of that prime, but not well understood essential, proteid food. The source from which it is to be drawn becomes a matter of taste, economy and necessity, according to circumstances. We can not always control these circumstances.

Flesh in some form, and oils are generally considered essential. Oily foods in due proportion are essential. We do not believe that flesh foods or meat, as it is usually, but not quite accurately termed, is a sine qua non, even in consumption or tuberculosis. It is all derived from grass or grains and contains no elements not found in various forms of vegetable food. It is sometimes immediately available when other forms of proteid food are either unobtainable or less digestible.

At the head of the oils and oily foods we place olive oil and the oil-yielding nuts. The latter make excellent substitutes for flesh, when it has been decided to eschew the latter. Formerly the professed vegetarians were classed as a long-haired, lantern-jawed and lanky race, but your intelligent modern vegetarian eats a due proportion of proteid-bearing and flesh-forming nuts, and waxes as plump as the proverbial partridge.

Milk and all the milk products, butter, curds, kephir, kumyss, cheese—if not spoiled by age and over-curing, are valuable and ready sources of nourishment in its most assimilable form. With milk and its derivatives, cereals, nuts and fruits a perfect dietary can be secured for all temperaments and all conceivable conditions of child, youth or adult.

At the very tail of the list of oil-foods we place that over-done panacea, cod-liver oil. Properly prepared and discreetly administered in connection with a properly balanced selection of other proximate elements of food, it is chemically and therapeutically capable of fulfilling an important mission. This estimate of its value is not strictly in accord with the prevailing opinion.

Query 131. In what does the so-called "ripening" process of meats (flesh) consist?

J. R., Oregon.

Answer.—The changes that occur in flesh that is allowed to stand, or is "hung" for some time after it is bereft of the life principle are chiefly chemical. The process that is set up is strictly retrogressive, that is, it is essentially a process of decay. It is not customary to speak of it as decay until it reaches a stage at which offensive gases are given off; in other words, till it stinks! The first appreciable change consists of the transformation of that muscle principle or ingredient called *inosit* into sarcolactic acid. Glycogen is changed into sugar, and this again into lactic acid. Popularly speaking, the muscle becomes softer, therefore more tender. In chemical parlance the process is that of maceration. The "embalmed" beef of the Spanish-American war was a little over-macerated!

Query 132. Why are the dietists claiming that the beef extracts are not particularly nourishing, and that they should be considered in the light of stimulants, with very little nutritive value? It is not long since we ordered beef tea, and weak solutions of beef extract for all our debilitated patients, and flattered ourselves that we were feeding them.

Answer.—Beef extract, comporting with its name, consists almost exclusively of the extractives and salts of the flesh. These contain practically no protein, which is the principal nutritive in all forms of flesh.

Beef tea, if properly made, contains a slight percentage of gelatin and soluble albumin, but the nutritives contained in the best beef tea are inconsiderable. It, too, is essentially a stimulant. Armour's Soluble Beef is quite another preparation. In this product the proteid elements of the flesh are included, and it contains marked and definite nutritive properties.

Query 133. Why is oatmeal called more "heating" than other cereals? N. F. L., Tenn.

Answer.—Oatmeal contains a little greater percentage of fat as well as a little more proteid than other cereals. This makes it simply a little more nutritious than the other grains. It is not specially "heating."

Query 134. What do you consider the most important substance used as food?

Answer.—By all means water. Sixty per cent. of the entire body is water, water is being continually given off by all the emunctories and excretory organs, forms the substance of all the secretions, and must be kept constantly supplied to the tissues, or the entire system suffers. An average adult requires eighty to ninety ounces of water per diem to maintain his body in healthy condition, whereas one-fourth to one-tenth that amount of water-free solids would suffice for bodily nourishment when supplemented or complemented with water.

The ancients had it, "Corpora non agunt nisi fluida."

Query 135. Some months since you referred to sand eaters as the latest dietetic cult. It is said that there is no smoke without some fire, what do these sand cranks claim for their fad?

C. C. A., Idaho.

Answer.—The chief, perhaps the only apostle of this cult, has now removed from St. Louis to Boston, kit, bag and luggage, where he is publishing some kind of a "Messenger of Glad Tidings" or something of the sort, with loud and long protestations of philanthropic aims and motives. He claims that he has cured more than 70,000 suffering invalids of their gnawing dyspepsias, chronic constipations, liver complaints and physical, mental and moral miseries generally. The only medicine is a teaspoonful of rather coarse and perfectly round and smooth sand. Unfortunately this particular sand can only be found in some far Western state, but is supplied to the credulous and incredulous alike, cleaned, screened and sterilized, at the bargain-counter price of twenty-five cents per bag, the bag containing a sufficient quantity to last any reasonable invalid one month. This sand is said to insinuate itself into all the most delicate recesses and interstices of the alimentary mucous membrane, and to do mechanically what no drugs can do chemically or toxically.

One thing is certain, every patient who follows this treatment can boast that he always has sand in his gizzard!

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SUGAR: ITS DIETETIC USE AND ABUSE.*

By Geo. H. Taylor, M.D.

Sugar is intermingled with other dietetic ingredients for the purpose of rendering them more acceptable to the sense of taste; in this sense it is a condiment. It is freely and abundantly appropriated by the vital organism in the support of its expenditures, and in this sense it is an aliment. It is practically fluid on entering the digestive cavity, and is therefore transferred to the circulation without essential changes, and in this sense is equivalent to predigested food. This ingredient of the ingesta therefore requires careful consideration in each of the rôles it is destined to play in the vital organism, to discover if possible the consequences of these influences, singly and combined; how they comport with, and how oppose physiological interests, and the nature of the ill effects which may arise therefrom.

At this point it is proper to advert to the fact that sugar in its isolated form is a comparatively modern product: the modes of separating it from the juices of plants and its modern uses, such as intermingling it freely with all sorts of food and drinks were practically unknown to the ancients. The substitute for sugar in ancient times was *honey*, a saccharine substance whose restricted and difficult production and irregular supply precluded its general and constant use even by persons regarded as favorites of fortune.

In modern times sugar is obtained cheaply and in almost unlimited abundance from the juices of several plants: for commercial purposes chiefly from the sugar cane, the beet root, and the sugar-maple tree. It is also procurable by the transformation of starch, abundant in edible seeds, roots and plants, by processes involving chemical knowledge.

The juices of sugar-yielding plants and roots always contain a due proportion of the *nitrogenized* ingredient of food, usually in the form of fluid albumen. The mechanical processes for obtaining sugar, are in reality, processes for separating and *discarding the albuminous ingredient,* as well as the woody fibre, the vegetable extractives and acids which coexist in the juice of the plant. The heat employed for concentrating the juice also coagulates the albumen, and renders its separation an easy mechanical process.

Starch and sugar are, in nature's processes, mutually convertible into each other. In the ripening of fruits, the starch, abundant in the green fruit, becomes the saccharin ingredient of the ripe. The sugar of the sap of the growing cereal, becomes the starch of the ripened grain, and the sweet sap of trees, is afterwards its leaf, twig and fibre. The starch of grains is transformed to sugar before becoming alcohol.

In each and all these transformations, the *nitrogenized* ingredient, naturally associated with starch and its alternate sugar, is practically unaffected. The presumption is natural and direct, that for nutritive purposes, the proportions between the nitrogenized and non-nitrogenized ingredients of the edible parts of plants are correct, and do not require to be essentially altered, to comply in the best manner with physiological needs. This presumption is confirmed, by observation of the physiological habits and physiological requirements of the whole animal world, for the life of all inferior creatures is maintained and development promoted by aliment consisting of commingled non-nitrogenized and nitrogenized ingredients. The starch and sugar of vegetable food are replaced by oleaginous matters in animal food.

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The progress of modern arts having greatly increased and cheapened the separation of sugar and its saccharin equivalents from the ingredients naturally associated with it, has contributed to an enormous increase of its consumption; and its use under the several inducements above noted, is practically unrestrained among all classes of people. Our commonest drinks, tea, coffee, chocolate, lemonade, soda-water and many others, often imbibed many times a day, are loaded with sugar. Other semi-liquids in constant use, as ice-creams, sorbets, jellies, canned fruits are thick with sugar. Additions of sugar to farinaceous articles of food, as cake, etc., simply increase the ingesta for which digestion is not required, as all saccharine ingredients are practically fluid when the digestive organs are reached. Illness is popularly and professionally regarded as requiring liquid or predigested food; and saccharin material being the ready means of contributing to that purpose, it follows that the food of the sick contains even a larger proportion of this ingredient than does that of the well.

Facts like the above pertaining to modern dietetic usages, seem to indicate the possibility of what might properly be called the *sugar habit,* from the prevalent use of sugar for the mere purpose of impressing the gustatory sense.

The sugar habit (if the expression be allowed) differs from those unequivocally pernicious, like the use of spirits, tobacco, etc., inasmuch as its impressions are strictly confined to the gustatory sense, while those referred to, do not particularly affect this sense; but by impressing the general nervous system, pervert the appetite and subordinate the vital organism to inferior physiological uses.

We may now inquire as to the consequences, probable and possible, of excessive additions of saccharin ingredients to aliment.

The *discriminating power* of the sense of taste is impaired, by excess of saccharin ingredients of ingesta. Sugar has great power to mask other impressions. Hence the disagreeable taste of medicaments are in general concealed by liberal saccharin admixture. So, also, are spontaneous deteriorations of quality, accidental admixtures of injurious ingredients, and falsifications of food, made practically undetectable by the convenient recourse of sweetening. It follows that *one* physiological purpose, and that a very important one, of the gustatory sense is partially defeated, and the victim's liability to disease is increased by the dietetic usage referred to.

The enjoyment afforded by the gustatory sense, is impaired. The curtailment of gustatory enjoyment has these two phases. The patent fact of concealing disagreeable qualities of ingesta, covers also those naturally adapted to make agreeable gustatory impressions. The more delicate and refined sapid impressions of the inherent flavoring ingredients are covered by the stronger and more constant saccharin impression. This fact involves the practical restriction of gustatory resources. The multiple enjoyable impressions, derivable from a variety of sources are practically exchanged for the dead level of that afforded by the saccharin addition to food.

The sense of taste becomes, under the circumstances, *morbidly developed.* The evidences of the truth of this statement, are these: Saccharin impressions resemble those made by non-nutritious condiments in the fact that incitation of gustatory function involves nutritive activity, in the source of this sense, and its development in compliance with well understood physiological law—tending toward disparity with and ultimate supremacy over other nervous functions, extending even to the judgment as to what is, and what is not proper food. Another evidence is, the prompt rejection by the victims of the miscultivated sense, of aliment, nutritively unexceptionable and unqualifiedly wholesome, till the usual saccharin additions have been made.

The sense of taste is made too active and exacting in comparison with the demands of appetite. The desire for food is naturally appeased by the ingestion of the required quantity. But continued saccharin impressions on the sense of taste, leads to ingestion regardless of appetite, and in excess of the demand for nutritive purposes. Confusion and disorder are thus introduced between these two necessary guides and guards of nutrition tending to alimentation without its natural and necessary check. Food is ingested to satisfy the over-developed and misleading sense, with too little reference to the legitimacy of the demand. The order of nature in the supply of nutritive requirements is reversed. Some form of reaction, producing suffering of the organs of digestion, is the the inevitable penalty.

Unlimited saccharin affords non-nitrogenized ingredients in excess of the requirements of the vital organism, and invites morbid consequences. This is the conclusion which is involved by preceding physiological statements. Some of these may here be recapitulated. Expenditures undoubtedly determine the nutritive activity of the vital organism, and therefore the need for and the amount of nutritive materials The actual supplies afforded by the digestive organs and the waste of expending processes are consequently co-equal. This equality is maintained by the coöperation of the expending and the digesting or fluidizing processes. The nature and the quantity of nutritive matters being functioned, that is expended, are physiologically determined in digestive secretions. Certain provisions inhere in the vital mechanism, to obviate the introduction into the vital parts through the circulation of an unfunctionable excess. The first and most important of these provisions is the insolubility. The saccharin ingredient of food is practically fluid, and is slowly transferred from the digestive organs without essential change, to the circulation and subjected to the physiological chemistry.

The question for determination is, when is the use of the saccharins an injurious evasion of physiological law, and when is it not.

It is evident that the proportion of the saccharin ingredient which obtains in cereal grains, and fruits, is physiologically desirable. This ingredient in that proportion seems to commend the whole by its impression on the gustatory sense, and by wholesomely calling forth the appetite. The consciousness is agreeably impressed, and through it the whole nervous system exercises a certain wholesome and needed influence over the nutritive processes. It should be kept in mind that the relation of the nitrogenized and non-nitrogenized ingredients of food remains unaltered. The saccharin contingent is practically transformed, *predigested* starch.

It is also evident that evasion of physiological law which demands the sanction of the digestive process for the introduction of nutrients, by supplying saccharins which do not call for the digestion process, is comparatively harmless, even though the quantity supplied be considerable, so long as physiological oxidation remains vigorous, and the demands do not exceed the capacity of the organic chemistry. The physiological test of the sufficiency of this process, is the absence or presence in the system of morbid residuals, whether the evidence of the fact be in the digestive cavity, membranes and glands, local or general capillaries, interstitial fluids, the nature of excretions, or in the reaction of vital parts caused by the untolerated presence of residuals at any point in the organism.

Nitrogenized and non-nitrogenized food as related to physiological chemistry.—The saccharin ingredients of food are rapidly transferred to the circulation and soon disappear, being transformed by oxidation to carbonic acid and water. These ingredients, together with the converted starch, are not the only sources of the sugar destined for oxidation within the vital organs. For it has been conclusively shown by leading physiologists that the *liver* is a source of saccharin material, since sugar is found in blood passing from that organ which could have no other source. This substance is therefore formed by its processes from residuals extracted from the blood it receives.

When it is observed that saccharin ingredients are more amenable to physiological oxidation than other chemical forms, the *purpose* of the transformations described becomes apparent. This is to facilitate oxidation and thereby the more rapid removal of systemic residuals.

The general principle that non-nitrogenized ingredients of the saccharin order are more readily removed from the vital organism, than the nitrogenized, is confirmed by the behavior of the two classes of ingredients under other circumstances than those presented in the vital organism, and may be regarded as inherent in this class.

If physiological analogies are trustworthy, it is probable that the secretions which transform starch to sugar are withheld on the ingestion of the latter; although an abundance of watery mucus appears, necessary for protective, but impotent for digestive purposes: the active agent being reserved for the starchy contingent of food.

The physiological conclusion from the above statement is that sugar simply displaces starch, which remains undigested and perfectly innocuous in the digestive cavity, and is finally discharged along with other undigested portions of ingesta, such as woody fibre, the connective tissues, chondrin, membranes, superfluous fatty substances, and bile resins and extractives, which together form a large portion of all edible substances.

The preference for saccharin food, arises from the agreeable impression of this ingredient on the sense of taste. The desire to continue this impression leads to excess of ingestion of the agent which causes it. Excess of ingestion may be defined as any amount which exceeds the physiological limit determined by expenditures. These are subject to constant fluctuations. This limit is not indicated by the sense of taste, for this now acts under abnormal, at least excessive, incitation; nor by the appetite, for this is now subordinated to the gustatory sense; but by consequences, the more noteworthy of which are too far removed in point of time to have the necessary restrictive influence.

The *protective* functions connected with the vital mechanism have been shown in a previous chapter. Excess of saccharin food weakens these in a perilous degree, for the normal power of the digestive organs for *excluding*, which parallels their including powers, are rendered nugatory by the fluid form of the saccharin ingredient. It is transferable to the circulation whether required for support of expenditures or not.

We may arrive at a trustworthy basis for estimating the quantity of saccharin ingredients which may, without serious detriment, exist in food. A healthy animal digests, that is converts into the saccharin form, just so much starch, as being correlated with other ingredients of food, complies with current demands of expending functions. It is obvious the same amount of saccharin might be physiologically substituted for the starch, and the latter omitted.

If, now, both, starch and saccharin be coincidently ingested, one or more of these consequences must follow: The digestion of the starch is superseded, and it remains an undigested inert residue. Or, it is wholly digested, and doubles the quantity required, and other branches of the protective functions are called into requisition, such as impaired secretions, diminished appetite, local, ominous residuals, etc. Or, it is *partly* digested, while the whole of the saccharin additions are necessarily absorbed, producing the same consequences in an inferior, and possibly imperceptible though positive degree. The latter is the case ordinarily prevalent in modern civilized communities

It is wrong to infer that the residuals

which acquire morbid preponderance in consequence of saccharin excess belong necessarily to the non-nitrogenized order of ingredients. The chemical nature of these matters is determined not by that of the ingredients ingested, but by the degree of imperfection of the chemical phase of the vital processes. Since saccharins, under ordinary, non-vital circumstances, are more susceptible to oxidation than nitrogenized or albuminous ingredients; and since the *motions* which inhere in vital objects, greatly facilitate the oxidation of the latter class of ingredients, it plainly follows that in case of great weakness and insufficient manifestation of muscular power, the non-nitrogenized ingredients will disappear from the organism, while the nitrogenized may be more tardily eliminated. This inference is abundantly confirmed by the nature of the ailments to which persons of abundant digestion and restricted motion (equivalent to restricted chemical phase of physiological activity) are most liable.

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A SYMPOSIUM OF PROPHYLAXIS.

Fourth Paper.

THE following abstract of a paper read by Dr. H. T. Patrick of Chicago, before the Twenty-eighth Annual Meeting of the Mississippi Valley Medical Association, and published in full in the *Journal of the American Medical Association,* is a veritable oasis in the illimitable desert of medical journalism, a delectable island in an ocean of medical conventionalism and mediocrity. Had we been on the judges' bench in the recent prize contest, and had this paper been submitted in competition we should have had no hesitation in reaching a decision.

For this reason we offer no apology for substantially reproducing it in this series, as at once the most original and practical contribution to the literature of preventive medicine it has been our good fortune to meet with in many years' observation of a host of exchanges. Dr. Patrick has studied human nature and observed physical and physiologic phenomena with a purpose, and best of all, he knows how to express that purpose. He talks without circumlocution, has no theories to bolster, and no fads to exploit.

Instead of excusing ourselves for producing this remarkable and refreshing paper we shall expect to see its wholesome and timely teachings spread broadcast through the lay press. It can not be too widely distributed. Its thoughtful perusal by intelligent people outside the profession will result in a world of good to the community in general, since those who are not themselves neurotic subjects are constantly compelled to suffer through their neurotic friends and neighbors.—[*Editor* GAZETTE.]

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HOW NOT TO BE NERVOUS.

Nervousness seems to be the stepchild of medical practice—somewhat disliked, half understood, certainly neglected.

For the average practitioner no problem in the theory of organic disease is too profound for attempted solution, no law of life too exalted for his aspiration, no bacillus so small as to elude his pursuit; but with such a triviality as nervousness, its nature, prevention and cure, he seldom seriously occupies his mind. To ponder the plain facts of heredity, development and child-rearing is too uninteresting. To cultivate a familiarity with the various passions and emotions, to search out manners of thought and feeling, or even to discover the dominating element in the life of a patient is quite impracticable. To take the time to counsel those about to marry, or to instruct the mother how not to spoil her children; to caution the father about his erratic son and give detailed instruction how to make him stable; to talk seriously to the young woman who is "all nerves" and lives in her emotions; to reason clearly and forcibly with the head of a family who is preparing himself for a premature breakdown—these are minor matters pertaining—to whom? to what? God knows, the physician does not. And yet if you will stop for a moment, take your finger from the pulse and your hand from the scalpel, your eye from the microscope and your thoughts from the microbe, I think you will agree with me that these trivialities contribute quite as much to human suffering and disappointment as do the infections, inflammations and neoplasms in the long category of human pathology.

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The first and most effective preventive of nervousness is a remarkably long line of first-rate forebears. Like begets like, and the nervous system bows to the law of life—the law of heredity; the law that governed your birth and mine and laid a heavy incubus on some of us; a burden of unstable nerves and abnormal susceptibilities; a burden that endures even to the third and fourth generations.

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Although a bad heredity is the most frequent and most potent factor in the production of nervousness, knowledge of this fact is not to lead us into apathetic resignation, but rather make us face the difficulty with wise determination. The poor victim instead of being allowed to dissipate the modicum of stamina a bitter fate has given him, is first to be shown just what his capital is, and then is to be taught just how to make the most of it.

Next to the omnipresent inevitable laws of inheritance comes the never-ceasing formative power of environment.

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Unfortunately, in too many instances the unstable and may-be irrational parents who gave to the child his poor nervous apparatus are the ones who guide, or misguide, his early steps into the perdition of nervous wreckage.

To look on such a child with the assurance that he is growing up to be the victim of nervous unbalance, inebriety or insanity, should not be idly to feel the despair of conscious impotence, but should be coexistent with an effort to avert the disaster.

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For preventing nervousness in the child nothing is so effective as the toughening of the body and mind.

A child who is made to have hard muscles, strong lungs and a vigorous digestion; who can bear changes of temperature and endure pain, is already a long way from nervousness. More important still is toughness of psychic fiber. The child who can support disappointment, who can be "crossed" without a tantrum, and who habitually obeys, is building a bulwark against "nerves," and the one who is not easily frightened, has self-control and a budding courage has nipped half a dozen neuroses in the bud. But to procure this toughness, be it understood, a certain exposure to bodily discomfort and mental hardship is necessary. This world is no "Happy Valley," and children brought up like Johnson's Rasselas are as little happy and as little able to cope with the realities of life as was that puerile prince. Many a father whose rugged rearing has given him a robust frame and a sturdy nervous system takes infinite pains and pleasure in denying to his sons the very training that made a man of him. His unwise love strangles in infancy whatever of sterling qualities he may have transmitted to them.

Two capital errors in the training of children frequently come to my notice; errors that prepare the little unfortunate for later nervousness or fairly drive him into it. They are, first, leading the child into pleasures and duties beyond his years; second, magnifying his importance in the family society. It is quite as dangerous to give children the pleasures of adults as to require of them the labors of the mature.

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To force mature functions from an immature organism is to violate the virginity of nature—a crime daily committed in the home and in the school, to be expiated in the sick-room, sanitarium or asylum.

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The fault generally lies in a mixture of vanity and ignorance on the part of the parents. They wish their children to excel in attainment, and they like to see them indulging in all the pleasures and excitements of our complex social existence.

Later the young person whips himself on to ruin. To instance only one disaster: the annual casualties following graduation from hot-house schools and colleges easily outnumber those of the entire disastrous camp life and battles of our late Spanish war.

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The child is not only made to be, but is made to know that he is the focus of all domestic doings, the hub of the family whirl. Every sensation, perception, conception and emotion is an event.

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In one form or another fear enters into the make-up of nearly every sort of nervousness. It paralyzes judgment, ambition and the higher emotions. Childhood should be absolutely fearless; fearless for self and for the future. That the young should have no fear of man or God, no thought for the morrow is natural and proper.

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When the parent makes the child a party to his apprehensions, confides his prescience of ills and communicates the ominous augury of bodily symptoms he is assiduously rearing a little hypochondriac who will live to condemn the parent who made him a burden to himself and a curse to others.

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How shall they manage not to be nervous? By proper living; proper working and playing, eating, drinking and sleeping; above all proper thinking and feeling.

When children reach adult life they are as children still—mutable, mobile, imperfect always, swayed by a thousand influences, slaves to countless circumstances.

Labor may have been a calamity to Adam and Eve. Nowadays it is no curse, but the bright particular star of happiness. To have a wholesome ambition and to work with enthusiasm for its fulfilment—these form the very essence of a vigorous existence.

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Many an invalid would be well to-day if he had a worthy purpose in life and happily labored for it. Many a hysterical woman would be stable and strong had she consistently striven with singleness of aim for a laudable object.

The purposeless idler is ever a weakling in unstable equilibrium, upset by every vagrant mood.

To say that overwork is not a very frequent cause of nervousness is frankly to enter the ranks of heterodoxy; but my experience is that work, hard work, is wholesome. To work hard is to get tired; to word too hard is to get too tired; but I seldom see the familiar spectacle of nervous breakdown due to work alone. It is the unwisdom that goes with the work. It is the worry, the strain of doubt, the wear of ungratified ambition, the depression of failure or the passionate play of other emotions that make the nervous wreck.

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The greatest efficiency of any living tissue is attained by alternating activity and rest.

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All life is attuned to this wonderful rhythm of action and repose. Even the busy heart that never ceases throbbing day or night from birth to death, so beats that every contraction is followed by a period of rest almost twice as long. That is, a healthy heart works only about one third of the time.

What is a good law for the heart is not a bad law for the brain.

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Besides relaxation we must have diversion. We must play if our work is to be effective and long sustained and if we are not to be nervous.

The advisability of reasonable eating, the pernicious effects of alcohol on the nervous system and the havoc wrought by drug habits are so universally recognized as to need no mention. With respect to diet, however, I can not refrain from noting one bad habit that has seemed to me to be very frequent in nervous people, and to contribute materially to their troubles. I mean the starvation habit—the obsession born of poor doctors or officious friends, that makes the victim eschew one article of food after another until he is trying to exist on Fakem's Nularine and Buncombe's Cereal.

Of all nervous sedatives and tranquilizers of mankind none equals "tired Nature's sweet restorer, balmy sleep."

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One can live without sleep just about as long as he can live without food. Children should be encouraged to sleep, young people should be made to sleep, and the nervous person should be taught to sleep. The sins of parents who carelessly or designedly shorten the children's sleep hours are only equalled by the folly of grown-ups who deny themselves sleep for the sake of business or pleasure. Alarm clocks are an abomination unto the brain and an evidence of hygienic evil.

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Fretting over non-essentials, striving for objects not worthy the having, fright at empty forms, looking inward at little self instead of outward at the greatness of creation—these are the follies that keep us nervous.

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Realization of the fact that the individual is merely a minute item in a limitless cosmos, at most a not very important integer in a complex society, should be the first step toward a rational adjustment of values on which must rest that serene placidity which is the antithesis of nervousness.

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To be plainer still, the person who is brought up, or brings himself up, to feel that he is of paramount importance; that his feelings, wishes and opinions are always entitled to prompt consideration, is on the very highway to nervousness. He is doomed to much disappointment; many rude shocks to his sensibilities, that breed a growing bitterness of spirits. He naturally gravitates into the neuropathic vice of introspection. To develop the conception that he is peculiarly constituted; that he is a wonderfully unique organization of finer mechanism than his fellow mortals, is continuously calamitous for anyone. As a matter of fact one man's stomach-ache is much like another man's colic, one woman's aversions about as strong as another woman's antipathies. A's grief is as keen as B's sorrow.

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Ambition is a wonderful force and makes for progress; emulation is an excellent stimulus, and industry is better than both; but in excess the combination has worked the nervous ruin of many.

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The young man of high aims who wishes to rival the success of a Lincoln, an Astor or a Virchow, and who thinks that the only necessary conditions are industry, honesty and frugality makes an egregious error. He reckons in ignorance of two stupendous factors: physical endurance and mental capacity.

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It must come to every physician, it certainly comes frequently to me, to explain to the nervous student that because his colleague can keep up well on five hours of sleep is no reason why he should be able to do the same; to show the irritable, sleepless business man that even if his competitor can work 15 years without a vacation he can not do likewise; to convince the ambitious Mrs. X. that she simply is not equal to the attainment at the same time of domestic excellence, social eminence and philanthropic distinction as the Mrs. Y.; and to tell the disappointing truth to many that although some fortunate beings are given master minds in master bodies this gift is not for all, and that to spur on the weary faculties is to drive to ruin. * * *

Why should one dissipate what he has in attempting to be what he is not, and in fretting because he can not? How many of us exhaust ourselves and wear out our friends by chafing against the chains of the unalterable! Imperturbability is a prince of peace.

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To sum it all up, if you wish never to be nervous, live with reason, have a purpose in life and work for it, play joyously, strive not for the unattainable, be not annoyed by trifles, aim to attain neither great knowledge nor great riches, but unlimited common sense, be not self-centered, but love the good and thy neighbor as thyself.

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THE PREVENTION OF DISEASE.

By C. F. Ulrich, A.M., M.D.,
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(Third Paper.)

One of the worst foes of human life and health is tuberculosis, sometimes, on account of its destructive tendency, called "The Great White Plague." It counts its victims by the hundreds of thousands. Many attempts have been, and are now being made, much thought has been expended in trying to find a remedy, hundreds, nay thousands of specifics have been concocted for its cure. Yet the disease nas gone on spreading, devastating many localities, especially in large cities, where the population is crowded together in close uncomfortable tenement houses, with an insufficient supply of pure air, with a want of proper facilities for practising cleanliness, even if the denizens have the requisite knowledge, which in most cases is also lacking. Here the sanitarian is confronted with a problem very difficult to solve. The unfortunate beings compelled to live in this manner, under such unfavorable circumstances, have a very poor prospect of avoiding this disease, or for recovering from it when seized by it and held within its deadly grasp. Yet there are some redeeming features in their mode of life. Most of them are compelled to work hard, by that means developing the muscles, and incidentally the respiratory apparatus. By continuous labor, with regular periods of rest, the circulation, the digestion and all the functions of the organism are strengthened, and to some extent fortified against disease. The general rules laid down in a former part of this essay will apply in the prevention of tuberculosis more than in any other disease. Repetition therefore is unnecessary. The questions that concern us now is how to keep out the bacilli from bodies that are so illy prepared to resist the attacks of the enemy. It is generally understood that the bacillus of tuberculosis enters the system by way of the lungs, being found floating in the air amid particles of dust which are inhaled in the process of respiration. Microscopic examinations have revealed the fact that this microbe is found in the greatest numbers in the sputum of tuberculous patients. This sputum mingles with the dust which is blown by the wind, scattered by the brooms of the sweeper, raised by the trailing dresses of the women, or by other agencies into the air, and then inhaled by anyone who may be in the neighborhood, or passing by at the time. When the bacilli-laden dust enters the interior of a body that is not well fortified against the attack of the microbes, either because it is weak by inheritance or by unfavorable environments, the microbe conquers, the victim succumbs and the disease is established. There are doubtless other routes and other means of access, open to this tiny enemy of mankind, but the one just detailed is the most common, and the one best known.

Now what is to be done to resist the entrance of this virulent foe to the health and life of man? We have already detailed the method of fortifying the system and rendering it immune against infections. But many, doubtless the majority, of the people do not possess the requisite strength of constitution to enable them to resist the onset, and throw off the evil influence of the germ that has invaded the body. We therefore have to find means to prevent the entrance of the bacillus. We have already described the method of keeping the air pure in a general way. How shall we do this in regard to the sputa of consumptives? Try to educate the people to habits of cleanliness. Teach them to understand the danger to which they are subjecting the public by promiscuous expectoration. Pass laws to prohibit this on the sidewalks, in the street cars, public vehicles and public buildings. See also that the laws do not remain a dead letter on the statute books. In private dwellings arrangements can be made to dispose of the sputa, if the people have been properly instructed, and are anxious to promote the health of themselves, the inmates and the visitors of their dwellings. Several physicians have lately invented little pocket spitoons that can be carried by consumptives who know that they are affected by this disease, and every victim of tuberculosis ought to know it, and the physician who fails to inform his patient of the danger to which he subjects his fellow men by spitting in public places and in private dwellings, is remiss in his duty, and becomes particeps criminis, if injury is thereby inflicted. We have already spoken of the beneficial effect of sunlight in strengthening the constitution and rendering the body immune. It is said by bacteriologists, that sunlight will destroy these germs in a short time. This taken in connection with the general benefit of the solar rays, shows that what we have said on sunlight in general will apply with double force in dealing with the prevention of tuberculosis. The habit of excluding sunlight on the plea that it fades the carpets and otherwise injures the furniture is a most pernicious one. For, is not the health or the life of a single member of the family of more value than all the furniture and house decorations that could be accumulated in a life time? Thin muslin curtains, that would simply veil the sunlight when too powerful, and polished hardwood floors, with here and there a rug laid down that could easily be taken out and cleaned, would answer every purpose, and be much more efficient in preventing tuberculosis.

The practice of permitting consumptives to sleep with healthy members of the family is very reprehensible, for persons sleeping in the same room necessarily inhale each other's breath, and that of the consumptive is always laden with germs. Some antiseptic, not irritating to the throat and lungs, should always be kept in the room where a person affected with tuberculosis sleeps. The writer has often observed that when a consumptive marries, after some years his or her life partner contract the same disease. If laws could be passed and enforced prohibiting the marriage of consumptives, a great step forward would be taken in the work of the prevention of tuberculosis.

Enteric or typhoid fever has long been a scourge in this country. This is propagated by germs found in the feces or dejecta from the bowels. It reaches the human system in a variety of ways. The contents of the night vessel are thrown upon the ground, into privies outside of the house, some of which are quite shallow, or into water closets situated within the dwellings. The feces thrown upon the ground, if the weather is dry, mingle with the dust and may be inhaled by people passing, the portion of this dust that sticks to the mouth and fauces will be washed into the stomach, which, with the intestines, is said by some to be the only nidus for the bacillus of this fever. In wet weather this is washed by rains into badly walled wells, or into watercourses from which drinking water is obtained. That thrown into shallow privies meets with the same fate, while the dejecta thrown into the water closets pass through the sewers direct into running streams, filling the water with filth and germs. The question of preventing the poisoning of the atmosphere and the pollution of the drinking water need not be discussed here, it has been treated in a former part of this paper. All that was said then applies with equal force to the prevention of enteric fever. The sanitarian and hygienic physician must be wide awake all the time and must use their best endeavors to prevent pollution of the air and drinking water as far as lies in their power. As for other contagious and infectious diseases, such as scarlatina, measles, mumps, whooping-cough and such like, they should be quarantined as far as possible to prevent their spreading to other members of the family and the neighborhood. The schools should be especially guarded against contagion by forbidding the attendance of all children of families in which such diseases exist. Health officers, teachers and school authorities should exercise eternal vigilance. All intelligent and well-informed parents will doubtless cooperate with municipal and school authorities in this laudable work. It should be the task of sanitarians to instruct the public in all such subjects, and to prosecute this work with earnestness and zeal.

RÉSUMÉ AND CONCLUSION.

In order to bring the subject treated of in this essay more plainly before the reader, a brief résumé of the argument will be made here. Should there appear to be some repetition in some places, pardon is asked on the plea of necessity. Heredity and the tendency to health or disease at birth has been dwelt on with some degree of earnestness. There is a little relaxation among scientific men on that subject, and some of them no longer insist so strenuously on hereditary tendencies as was done in the past century. A close study of Nature, however, will convince us that this is one of the ruling principles in the birth, development, life and death of all organized beings, whether vegetable or animal, in which latter the human organism is included. The sanitarian and hygienic physician, also the intelligent layman, who endeavors to assist the family physician in the promotion and preservation of the health of his family, will undoubtedly have to deal with the subject of heredity, and study its bearings on the future welfare of the family. To the intelligent observer these tendencies to health or disease become apparent soon after birth. Another point in connection with heredity must be mentioned, it is that acquired properties, after several repetitions in successive generations, become distinctively hereditary. Although this has been denied by some late writers, a close observer of nature cannot fail to prove that it is true. These acquired properties, however, if taken in time, are more easily combated and finally eradicated if unfavorable, and may be encouraged and strengthened if favorable to the healthy development of the child. The child is here more especially referred to because new habits and qualities acquired in childhood and youth are very difficult to eradicate in the old. Now if any hereditary defects are thus discovered in the child, it becomes the duty of the physician to explain this to the parents, and secure their coöperation so far as their degree of intelligence will allow in combating the evil tendencies and encouraging the good. It is a well-known principle in physiology and pathology that immunity against disease can only be secured by having all the organs in first class working order. The human organism may aptly be compared to a steam engine or a watch. If any of the bearings, valves or other parts of the machinery are not perfectly adapted to each other, the mechanism will work imperfectly. If some part is too weak for its work and an obstruction occurs, it will break and the machine will cease to work. Again, if the machine is not oiled and cleaned, it will become clogged and the same result follows: the work moves irregularly and the machine finally breaks. So it is with the human machine. When a defect is discovered efforts should be made at once to correct it, if possible, and by that means to promote the smooth and regular working of the machine. If these efforts are successful, the child, with unremitting care, may become healthy and finally immunized against the onset of disease. The chief among the means for maintaining the strength and supporting the life of the human being, are light and heat. The sun is the source of all life on the planets. Therefore the light and heat of the sun must be utilized for the support of human life and the preservation of health. During the season when this is too strong it may be modified by various contrivances, and during the cold season and dark hours it may be assisted by artificial means. Let it not be forgotten that the sun, with light and heat, is the greatest benefactor man possesses. Atmospheric air is absolutely essential to life, without it man's life would be counted by minutes. Its uses have been explained in another part of the essay, and we will very briefly recapitulate. Air supplies oxygen to the system, which is one of the essentials to organic life. It forms an important constituent of most of the tissues, it aids combustion that is going on all the time, in the transformation of tissue and in the production of bodily heat. It supplies the internal machinery with electricity in the form of ozone, which doubtless forms part of the vital force which has been, and is yet the great mystery of life. This air should be pure, free from noxious substances that might interfere with the natural processes in a healthy body, and so far as possible, free from the germs of disease. The means employed for keeping the air pure and purifying it when polluted, have been described as far as our knowledge of this subject goes. If the lungs are weak and not in a condition to take in a sufficiency of this life-giving fluid, methods should be employed to enlarge them by a regular system of expanding the chest, which comes under the head of physical training described above. This part of it should be practised daily and hourly. Enough has been said on the impropriety and the danger of excluding the air from dwellings and bedrooms. The small amount contained in such rooms will soon be contaminated by the carbonic acid, the product of internal combustion, and the waste resulting from the wear and tear of the tissues, in the continual transformation going on in the vital processes. There are modern systems of ventilation that permit the vitiated air to go out, and the comparatively pure air to enter without causing a disagreeable draught that should be adopted in the construction of all public buildings, especially school-houses, and as far as possible in private dwellings. Notwithstanding these improvements every individual should spend as much time as possible in the open air to inhale larger proportions of the vivifying element.

Enough has been said about the water to be consumed, which we need not repeat, nor is it necessary to add anything to it. Suffice it to say that water, as pure as it can be obtained, is essential to life and health, that it should be used in abundance externally and internally, hot, tepid or cold as circumstances require. The man or woman that uses plenty of water as a beverage, for a bath or for general purification, everything else being equal, will enjoy better health than the one using it sparingly or scarcely at all. We will not repeat what has been said in regard to special diseases, as it would unnecessarily lengthen this essay. Not much has been said here about the excessive use of alcoholic beverages, as that subject has been discussed almost ad nauseam lately. We will simply say that it is a source of many diseases, it brings in its train gastro-intestinal affections, kidney, liver, heart and brain diseases, whose name is legion.

Now, although many men go through life as moderate drinkers, enjoying good health and reaching a high age, there is so much fascination in the use of alcoholics that the great majority are led on to take more and more until they become habitual drunkards, and besides bringing on themselves many of the numerous diseases that follow in the wake of such dissipation, they destroy the power of their brain and become in many cases criminals, and sometimes imbeciles. The best advice, therefore, that we can give to those who are inclined to indulge in that sort of pleasure is to avoid it altogether, if they wish to enjoy good health, a good reputation, a clear brain and life-long happiness. The ancient adage, "Sana mens in corpore sano," is as true to-day as it was many centuries ago, when it was first uttered. If you want to have a sound, clear, penetrating and far-seeing mind you must not only cultivate that, but must see to it that all the bodily functions are in good working order, that no disease is preying upon your vitals, that everything in the human machine works like a well regulated clock or watch. If you are endeavoring to perform a difficult intellectual task, to solve an intricate problem, to write a book that shall make you famous and the world wiser and better, can you succeed if your alimentary canal is not doing its work, if your kidneys are not separating the used up, unhealthy particles from the blood, but are allowing them to go on poisoning the system and clouding the brain, if your liver is out of order and you are in pain? If some of these disabilities become chronic, interfere with the digestion and the assimilation of the food, converting you into a chronic dyspeptic, rob you of your rest at night, afflict you with pain so that you can think of nothing but your physical suffering, can you concentrate your mind on the welfare of your family, on the great problems that agitate the world for the amelioration of mankind? In short, can you perform any continued intellectual labor? Will not the mind gradually degenerate, so that you will become utterly unfit to perform your part in life as the head of a family, a member of society and as a benefactor of the human race? It therefore becomes evident that not only the bodily health and well being, but also the intellectual and spiritual life depend on our studying the laws of hygiene and carrying them out in our own lives, and in the lives of those who are intrusted to our care, whether we act in the capacity of parents, guardians, physicians, health boards or public authorities.

In the foregoing pages we have endeavored to describe what must be done to prevent disease from getting the upper hand of us, to keep a healthy body up to its standard and to build up one that begins life with a weak constitution, either by inheritance or by adverse circumstances in childhood and early youth, to a standard as near to perfection, as lies within our power.

May this weak effort not be wholly lost, but may it scatter abroad some of the seeds of health for the benefit of mankind.

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TOXEMIAS FROM SPIRIT DRINKING.*

By T. D. Crothers, M.D.,
Superintendent, Walnut Lodge Hospital, Hartford, Conn.

Every physician is familiar with symptoms of disease which are called bilious, malarious or rheumatic, chiefly noted by dull pain, slight fever with general exhaustion and wandering neuralgias and myalgias. These symptoms disappear readily from the use of calomel, salines and other eliminative measures. The modern teachings of medicine indicate that these conditions are simply toxic states, autointoxications and toxemias from the presence of ferments and bacterial products, and also due to failure of elimination and chemical changes of foods in the body.

It is a new fact that many of these toxic states are traceable to the use of spirits, and that persons who drink wine, beer and stronger spirits in moderation or in excess suffer commonly from these obscure disorders. The average moderate drinker who uses spirits at meals or on other occasions, which is not considered to be excessive, is often an invalid and complains of rheumatism, malaria, and suffers from insomnia, dyspepsia and catarrhal difficulties. These symptoms are ascribed to other causes and the connection between the use of beer and spirits is rarely recognized, but if from any cause the person becomes a total abstainer, the disappearance of these symptoms and the general improvement in his health give unmistakable indications of the toxic origin. The use of beer, supposed by many persons to be healthful, is found to be dangerous from the new ferments and bacterial formations which it brings to the body, and the abnormal metabolic changes produced by its presence. While beer and moderate spirit drinkers may seem to have the appearance of health, they suffer from enfeebled heart's action, obscure forms of dyspepsia, catarrhal inflammations, and instability of the nervous system. The appetite is changed and both sleep and work are more or less irregular, and many symptoms of disability are present. It is at this time that the terms rheumatism, malaria, neurasthenia are used to describe the conditions present. Recent clinical studies indicate that next to syphilis alcohol in any form is a common contributory cause in the production of a great variety of diseased states. This will be apparent from the new studies of the action of alcohol on the organism. It is now fully recognized that alcohol even in small quantities is a narcotic and has a peculiar corroding action on both cell and tissue, impairing their power of growth and diminishing their functional activity. The proteids and albuminous compounds are changed, perverted and become waste products. The narcotic action of alcohol, particularly on the vaso-motor nerves, seriously affects the circulation of the blood, breaking up the normal rhythm and allowing the blood to pass with irregular force and volume, followed by greater strain on the walls of the arteries and veins. Alcohol in the blood diminishes the oxygen-carrying properties by destroying the hemoglobin of the blood. The waste products from the derangement of the circulation and the disturbance of digestion are increased and become sources for the growth of toxic germs. Both the liver and kidneys, as well as the heart, are alternatively increased in activity and suffer from diminished nutrition.

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* *Albany Med. Annals.*

The condition is always that of derangement, irritation, narcotism and starvation, from which inflammation and exhaustion are sure to follow. The products of the deranged metabolism become poisons and their presence is manifest in many obscure symptoms. The young physician trained in the technic of modern diagnosis will find in these symptoms evidences of organic disease, while the older physician, with an intuitive diagnostic sense uses the term bilious to express his conception of the diagnosis. The following are some illustrative examples. A lawyer of fifty-two gave up business on the supposition that he had paresis and must die. He had been treated actively for five years and had received the advice and counsel of many of the leading experts of the day. He used spirits habitually at meals and at intervals for many years, before and during the treatment, eating heartily and rarely exercising. The usual pathognomonic symptoms of paresis with gastro-intestinal disturbances, and delusions of grandeur were present and slowly increasing. He was placed under my care to stop the spirit drinking. This was done, and a course of baths and sharp eliminative measures with moderate exercise in the open air was carried on daily for months followed by a rapid change and improvement. In two months, the pain had subsided, the delusions disappeared, and he was able to go about partially restored. The treatment was continued eight months, then he went to the seashore where baths were given every day. A year later he returned to his profession and for the last two years has been well, working moderately and living abstemiously. The evidence indicated a toxic condition which simulated paresis. This passed away when alcohol and the toxins were removed, and improved metabolism began.

A similar case was that of a politician who drank heavily and lived in very exciting surroundings. His mind took on delusional states with symptoms of palsy both general and local. The diagnosis was paresis and he was placed under my care. The withdrawal of spirits and the use of baths with phosphate of soda and other salines was followed by rapid improvement and full recovery a year later. This patient is still living and has no symptoms of paresis or other disease.

A third example was that of a very vigorous man who, after an attack of influenza, had hemiplegia, which was followed by great mental enfeeblement. The diagnosis by many physicians was that of organic disease of the cord and cerebral hemorrhage. The prognosis was considered doubtful. He had been a wine and beer drinker for many years and was allowed to continue the use of wine as a tonic. He was put under the care of the country doctor as incurable, the only expectation being that he could be made more comfortable in the quiet of the country This physician, from my advice, used a cabinet bath with profuse sweating and massage every day. All use of spirits was abandoned. Phosphate of soda and other mineral waters constituted the only remedies given. The recovery was rapid, the paralysis disappeared, and his mental condition was restored and a year after he had practically recovered. Three years later he was in good health and employed with a relative in mercantile business.

These cases were clearly those of toxemias, of which alcohol was the prominent exciting cause. The removal of alcohol and the elimination of the toxins and other conditions of poisoning were followed by a return to health.

Recently, a clergyman who was a beer and wine drinker came under my care. A few months before he had been stricken in the pulpit with hemiplegia and unconsciousness. On recovering consciousness great prostration and mental feebleness followed. The physician continued to use strong spirits and large quantities of liquid food to keep up his strength. This man had drank wine regularly at the table for years and used spirits at other times; also had eaten very heartily. For the last two years he complained of headaches and intestinal troubles with prolonged periods of prostration. On admission to the hospital, an enlarged liver, fatty heart, albumen in the urine were the most prominent states found. All spirits were abandoned and baths, electricity and massage were substituted. The diet was restricted and exercise in the open air was given daily. Six months later he went to Europe under the care of a physician, living very abstemiously and bathing regularly. He returned a year later strong and well. This was a case of autointoxication.

A still more prominent example was that of a mill owner, who had been well and temperate up to forty-six years of age when, after a trip to Europe, he became convinced that he needed wines as a medicine at meals. For the next five years he regularly drank wine at the table, eating freely of rich foods on the supposition that he needed more strength and vigor with his increased work and age. A year after he began to drink wines attacks of headaches followed by extreme exhaustion and supposed rheumatic pains in his legs and feet, appeared and were treated by the physician as malarious. Inflammatory conditions of the joints followed, also insomnia and convulsive attacks of irritability and depression. He then came under my care. Spirits were removed first and restricted diet with active eliminative treatment was carried out for several months, after which he recovered and resumed business again. Two years later he began to use wine again at the table and occasionally spirits were taken. Attacks of rheumatism appeared and with it convulsions which were called epileptic. The physician prescribed spirits at short intervals and used narcotics to prevent the convulsive attacks. A few months after he died from acute pneumonia. This was clearly a case of autointoxication in which the use of wine, rich foods and bad living were the active causes. The physician failed in not prohibiting spirits and insisting on total abstinence followed by active eliminative treatment.

I have seen a number of cases in which the use of beer taken regularly at meals and otherwise in the day have been followed by symptoms of nervous and digestive derangement which were supposed to come from other causes. Thus an active business man, suffering from fatigue incident to his work, is advised to take beer as a tonic. Later he suffers from headache, has gastric disturbances and is unable to walk or to endure muscular exercise without unusual exhaustion. Many of these beer drinkers complain of stupor, want of ambition, and tendency to sleep in monotonous surroundings. Palpitation of the heart, suspicions and doubts, where all was confidence before, neglect of important duties, failure of memory, disposition to be slack in both manners and dress, are many of the symptoms seen among beer drinkers. Their disappearance when beer drinking is stopped is strong evidence of the toxic alcoholic origin.

Recently, a prominent lawyer who has been a beer drinker for years and has been unsuccessfully treated by many physicians for obscure maladies, suddenly became a convert to the Christian Science Faith. He abandoned all use of spirits and lived abstemiously. His recovery was attributed entirely to faith and the power of God. He has become an active teacher and poses as an example of the effect of the higher spiritual laws. In reality, it was simply the removal of spirits and the state of autointoxication.

I conclude with a statement of the necessity of recognizing the poisonous action of spirits whether taken in moderation or excess, and summarize what I wish to make prominent as follows:

1. Alcohol in any form, taken into the body as a beverage, is not only a poison but produces other poisons, and associated with other substances may develop toxins. Alcohol is also an anesthetic and not a tonic or so-called stimulant. It increases the waste products of the body and diminishes the power of elimination. It also destroys the phagocytes of the blood, and thus removes and lessens the protective power of the blood-cells.

2. Whenever alcohol is used continuously as a beverage, for its medicinal effects, favorable conditions and soils for the cultivation and growth of poisoned compounds are created. These may be neutralized by other conditions and not be apparent in the derangements of the functional activities which follow. Where disturbance and derangements of the nutrient and functional activities of the body are associated with the use of alcohol, their transient character and disappearance by the removal of spirits suggest the causes.

3. The functional and organic symptoms of derangement appearing in those who use spirits in moderation or excess, which quickly disappear by abstinence and eliminative measures, are clear indications of autointoxications from this source. Obscure symptoms of the nervous system in persons who use spirits should always be examined in relation to the toxic origin from this source. Also grave nutrient disturbances should suggest the same cause with the same treatment.

4. The treatment of all such cases, in which alcohol is used in any form, should be by antiseptic and eliminative measures, and the supposition should always include the possibility of poison by chemical products formed in the body.

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

FOUR ENEMIES OF HEALTH.

THESE, according to Dr. Kellogg, writing in *Good Health*, are

INDIGESTIBLE FOODS.

Indigestible foods do great mischief, by compelling the stomach to do an unnatural and injurious amount of work. Liquid food passes out of the stomach within an hour after it is swallowed. Everything taken into the stomach should become liquid, and should be discharged from the stomach within three hours. Such woody substances as cabbage, celery, spinach, and such indigestible substances as pickles, salted foods, and rich pastry, often lie in the stomach for many hours without becoming perfectly liquefied. The result is great irritation of the stomach, fermentation, the formation of gases, gastric catarrh, catarrh of the bowels, loss of flesh, weakness, and a great variety of distressing ailments. Dilatation of the stomach is a common result of the use of these coarse and indigestible substances. If coarse vegetable substances are eaten, they should be thoroughly masticated and reduced to a soft pulp before being swallowed. Green olives, pickles, preserves, fried food, and similar indigestibles are quite unfit for food, and should be discarded from the dietary altogether. Ripe olives are excellent food. Care should be taken to remove the salt by soaking in water overnight. Cucumbers are harmless if cooked. Raw cucumbers and a few of the better vegetables, such as green peas, asparagus, and string beans, may be eaten by the majority of persons who have good digestion, provided great care is taken in mastication.

Ice cream is another indigestible food, which should be mentioned as altogether unwholesome. The use of ice cream and the use of very cold foods at meals is objectionable, because they lower the temperature of the stomach, and suspend the digestive process.

Such chemical substances as soda, baking powder, and saleratus, and self-raising flours of various sorts, are altogether unwholesome, and are productive of dyspepsia in a very grave form, which is often difficult to remove.

HASTY EATING.

This is a very common dietetic fault, especially in America. The habit of drinking freely at meals encourages deficient mastication. An abundance of saliva is needed for the proper digestion of the food. This can be obtained only by prolonged mastication. The flow of saliva is greater when dry food is eaten than when the food is liquid, or eaten moist. Very little saliva is formed when food is taken in a fluid state. If the food is taken dry, and masticated until it is reduced to a soft pulp, prompt digestion is much more certain than when the food is taken soft or washed down with liquid of some sort. A dry diet, when one has become accustomed to it, unquestionably promotes endurance and vigorous nutrition.

Mr. Horace Fletcher, of Venice, has shown that the quantity of food required to maintain strength and weight is very much less when the food is thoroughly masticated than when it is hastily eaten.

IMPROPER COOKING.

The concocting of indigestible masses by cooks and their assistants is unquestionably the source of a vast amount of disease and misery. Complex dishes, as well as those which are highly seasoned, are extremely taxing to the stomach. A too great variety at a single meal is to be avoided. Frying, and the use of baking powder and other chemical substances, are slovenly practices. Cooking is a fine art, which is well deserving of more attention than it receives at the present time. Too much time is spent in the preparation of desserts, sweets, and dainties of various sorts, to the neglect of those matters of primary importance which relate to the preparation of a suitable quantity of easily digestible food, adapted to the needs of the body.

Drinking at meals should generally be confined to the very smallest quantity. Hot drinks are relaxing and debilitating to the stomach, and hence should be discarded. Tea and coffee should be strictly forbidden, for they injure the nerves and destroy the digestion. This has been proved by actual experiment, as well as by the experience of thousands of physicians. There are few physicians of the present time who do not require their patients to abstain from the use of tea and coffee when they present symptoms of gastric disturbance. It is very easy to see that if the use of these beverages disturbs the stomach which is weak, they must be more or less disturbing to a strong stomach.

Wine, beer, and ale also interfere with digestion, producing fermentation and preventing the proper digestion of starch in the stomach. The popular idea that these substances are an aid to digestion is wholly without foundation.

IRREGULAR MEALS.

The two-meal-a-day system is the proper order of eating. The ancients practised eating but twice a day. It is only in modern times that the practice of eating five, six, and even seven times a day has come into vogue. There is really no excuse whatever for eating more than three times a day, and twice a day is better when ordinary food is taken at each meal. If one chooses to take a breakfast and supper consisting chiefly of fruit with the addition of well-browned crusts of bread, he may do so without serious injury. It is better, however, to take nothing but fruit at night. Two good meals, with an interval of seven hours between the beginning of the meals, is unquestionably the best plan. When but a very small amount of food can be taken, as in certain cases of illness, nutriment may be administered four or even five times daily. Food should be taken in a liquid form only, and not more frequently than once in three hours, unless the amount given at each time is very small indeed, not exceeding a spoonful or two.

In order that there should be normal action of the stomach and bowels, the food must be taken at regular times. The digestive function, like every vital process, is more or less rhythmical. The stomach is prepared for the taking of food at the times when it is accustomed to receive it, and food should be taken at that time.

Irregularity of the meals interferes seriously with the proper evacuation of the bowels, which naturally occurs soon after the morning meal. If the second or last meal of the day is omitted, the evacuation of the bowels is likely to fail the following day. This is due to the fact that the taking of food is a natural stimulus to the peristaltic action by which the contents of the bowels are moved along the canal. It is far better to omit a meal, however, than to take meals so near together that food is taken into the stomach before that which is already there has been digested and evacuated.

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DIET AND ENDURANCE.

By J. R. Leadsworth, B.S., M.D.

During a recent visit of the writer in London, considerable interest was manifested over an athletic contest which had just taken place in Germany to test the relative endurance of the vegetarian and the flesh-eater.

The contest under notice was a race promoted by the Kornet Sport Club, Berlin, walking or running, Dresden being the starting-point and Berlin the finish. The distance between these two cities is about one hundred and twenty-five English miles. Among the contestants were eighteen vegetarians and fourteen non-vegetarians, or flesh-eaters.

The German government, with its usual progressive spirit, appointed scientific experts to watch events through every stage of the race for the gleaning of facts likely to be used to the physical welfare of the people. In this respect Germany has set an example that it is to be hoped other nations will not be slow to follow.

Scientific experts of the Royal Physiological Institute made careful tests and examinations of the favorites both before and after the contest. At different points of the race the competitors had to sign their names at control stations, and as early as the first forty-seven miles there were five vegetarians in the lead, and all were doing excellently.

Only thirteen of the thirty-two contestants reached the goal, in the following order: (1) Karl Mann, 26 hours 58 minutes; (2) Herman Zendt, 28 hours 58 minutes; (3) Martin Rehann, 30 hours 29 minutes; (4) A. L. Dheur, 30 hours 57 minutes; (5) Thuk, 32 hours 46 minutes; (6) Pochfdi, 34 hours 9 minutes; (7) Runge, 34 hours 32 minutes; (8) Schmidt, 35 hours 5 minutes; (9) G. Gahde, 39 hours 58 minutes; (10) Biber, 41 hours 55 minutes; (11) Peterjohn, 44 hours 6 minutes; (12) Debes, 44 hours 53 minutes; (13) Max, 49 hours 58 minutes.

Of the thirteen who completed the full course only three were flesh-eaters. These came in Nos. 7, 8, and 13. No. 9 was a man sixty years old, while No. 3 was but twenty, both vegetarians.

The weather could hardly have been more unfavorable, the most of the distance being covered during a blinding wind and rainstorm, but in spite of this the winner, Karl Mann, lowered the world's amateur record of sixty-two miles by twenty-three minutes. Mr. Mann is not a professional, but an amateur, engaged in business, and judging from the endurance displayed during and after this contest, one would say that a walk of one hundred and twenty-five miles was simply a holiday for him.

For the ninety-six hours including and following the race he obtained only twenty-one hours' sleep, during which time he gained four and a half pounds. Professor Zundt, chief director of the Royal Physiological Institute, found, by physical and X-ray examinations, that his heart was even smaller after passing the goal than before the start. Every physiologist realizes that the great danger of violent athletic contests is dilation of the heart.

Careful examination of the mental faculties demonstrated that no change had taken place—that the memory was as retentive and the intellect as keen immediately after finishing as when examined in Dresden.

Mr. Mann is an enemy of tea and coffee, his diet consisting of fresh and dried fruits, bread, cooked cereals, prepared nuts of various kinds, forming the so-called nut butter, fresh green vegetables, and salads, and occasionally unfermented grape juice.

That this test of endurance of the vegetarian is not an exceptional one has been abundantly demonstrated by numerous carefully-watched experiments within the last decade. One which has been published quite extensively in the *Medical Press* is that of a traveler in Japan who drove 110 kilometers (68 miles) in fourteen hours, changing horses six times. A Japanese with a cart made the trip at the same time in fourteen and one-half hours. He had two rikisha men trot 40 kilometers (25 miles) with his weight of 80 kilograms (175 pounds) every day in the heat of the sun. At the end of fourteen days one of the men had gained one pound in weight. He then added a little meat to their food, but the men said it made them feel tired, so it was suspended after three days. At the end of the twenty-second day of the test the men were as full of energy as at first.—*Pac. Health Journal.*

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THE TREATMENT OF TUBERCULOSIS IN THE INCIPIENT STAGES.*

By W. B. Hopkins, M.D.,
Cumberland, Wisconsin.

I need not to tell you that this subject is receiving marked attention from the medical profession, both in this country and in Europe. The British Congress on Tuberculosis, which met in London in July of this year, had delegates from nearly all parts of the civilized world. In fact, it has been said that the Sanatorium treatment for consumption is in the air, and why should it not be?

S. A. Knopf, of New York, states in his late book on the "Prophylaxis and Treatment of Pulmonary Tuberculosis," that it is generally conceded to-day that one-seventh of all deaths are due to consumption and one-sixth of all mankind is tuberculous. In the early history of this disease, he gives quotations from Hippocrates and others. Hippocrates said: "The greatest and most dangerous disease, and the one that proved fatal to the greatest number, was consumption." He also believed in its curability.

Isocrates taught that it was contagious. Aretaeus, Celsus and Pliny, all of whom lived B. C., and Galen, who lived in the second century, gave us excellent ideas in regard to its treatment. They speak of sea voyages, rest cure, frictions of the skin, life in the country, sun's rays, air of pine forests, and Galen taught that the dry air of the mountains would heal ulcers in the lungs. He also taught the contagious nature of phthisis. All this was centuries ago, yet when I was a student a score of years ago, we heard little about the contagious nature or the curability of consumption. We were taught that it was curable, but were led to believe in the proportion of about one case in a thousand. Thus it would seem as though the present Sanatorium methods were, in a measure, a revival of some of the modes prevalent before the Christian era.

In looking over my available literature on this subject, I find many new and some novel methods of treatment, but the purport of this paper is not the general treatment, but the Sanatorium methods, and not what I know, but what I saw while visiting several of these institutions in the East, in July of this year.

How does a Sanatorium for Tuberculous patients differ from the general hospital or health resorts?

What class of people avail themselves of these institutions?

What is an incipient or curable case?

What is the treatment?

How many are really cured?

Is the cost within reach of the masses?

What deduction can we draw from those that have been in operation for a number of years?

These are among the many interesting questions one may ask on this subject. Dr. E. L. Trudeau, of New York, founded the Adirondack Cottage Sanatorium seventeen years ago, his object being to bring this method of treatment within reach of working men and women who were sufferers from tuberculosis, and whose lives were sacrificed because of their poor environment. He commenced with two small buildings on the Adirondack plateau, near Saranac Lake, but from this small nucleus has sprung the beautiful collection of cottages and the infirmary which one finds nestled in a valley between some of the higher peaks of these mountains.

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Many of the cottages are rustic, some are built of common cobble stones with the cement hardly visible. Many of them are gifts of former patients. The new infirmary, costing $20,000, was the gift of one man. There were 100 patients in the nineteen cottages, who all seemed to be enjoying this very pleasant and hopeful road to recovery.

Dr. Vincent Y. Bowditch, of Boston, is a strong advocate of the Sanatorium treatment for this class of patients, and through his efforts a Sanatorium was constructed at Sharon, Mass., in 1891, for consumptive women. The institution will at present accommodate but a limited number, but the treatment is carried out in every detail. Dr. Walter A. Griffin, the resident physician, told me that, almost without exception, they had the co-operation of the patients in carrying out the seemingly rigid discipline, especially in regard to having pure air at the expense of warm air in winter.

But I will confine myself to the Massachusetts State Sanatorium, located at Rutland, twelve miles from Worcester, in giving a more detailed description of one of these institutions. This was the largest one I visited, and being a State institution, the rules are most rigidly enforced, especially in regard to the rule of admitting only incipient cases. The large, commodious and imposing buildings are located on a southerly slope, protected on the north by a hill covered with a forest of evergreen and hardwood.

The altitude is 1,160 feet, and the hill on the north where the patients spend much time is 100 feet higher. The soil is dry and sandy, and capable of good drainage.

The difference between the Sanatorium for Tuberculous patients and the general hospital or health resort is best shown in the treatment. In the general hospital, the patient is carefully treated, not taught; he is a passive occupant. At the health resort, the person does pretty much as he pleases, while the Sanatorium for this class of patients is an educational center, where incipient cases are taught the important laws of hygienic living, and made to apply them, and are impressed with the fact that their only safety consists in always adhering to them.

To ascertain the class of people who avail themselves of this institution, I have taken the two last annual reports which include 716 patients. The sexes are nearly equally divided. The unmarried constitute 60 per cent. The average age was the same in both reports, namely, 28 years. The occupation of 599 patients was carried on in-doors, of 65 out-of-doors; both in-doors and out, 52. This is so very interesting that I have noted some of the special occupations.

Housewives and domestics	183
Clerks, bookkeepers and sales people	122
Factory and mill operatives	99

Thus the dwelling house, the store and the factory gave 56.4 per cent. of the entire number of cases, while the poor country doctor who groans about the inclement weather is nearly exempt, as there are but two cases, three clergymen and one policeman. But you say, there are not as many doctors, clergymen and policemen to draw from as there are domestics, clerks and operatives. This is true, but there are *more farmers,* and of the 716 cases, there were only *four* tillers of the soil.

The patients seeking admittance are all subject to examination, and only those cases which are hopeful of cure are admitted. Thus far more applicants are rejected than accepted. Those accepted I will classify under the form used by Dr. H. C. Clapp, as incipient, moderately advanced and far advanced.

An incipient case is defined as one in which the physical signs are confined to very small areas, namely, in one or both apices of the lungs, and in which the constitutional symptoms are but slightly developed.

Advanced cases are those where there are well marked areas of consolidation or cavity formation. The definition at the Sharon Sanatorium is, cases in which the physical signs, such as changes in percussion or vesicular murmur, possibly a few râles, are confined to small areas, and in which only slight constitutional signs, such as fever, indigestion and loss of strength, are present. They send the physicians in the State the following suggestions in selecting proper cases:

CASES SUITABLE FOR TREATMENT.

"Those in which there may be signs of incipient disease only, such as slight changes in percussion note or respiratory murmur, with or without râles in one or both apices, the general condition being good, *i. e.,* where there is little or no fever and an absence of symptoms showing laryngeal and marked digestive disturbance.

LESS FAVORABLE CASES, BUT STILL SUITABLE FOR TREATMENT.

Those showing only slight changes of temperature; some impairment of general strength, with one or both apices showing dulness, with râles, sometimes even with cavity formation, if a dry condition seems to prevail; absence of all symptoms showing laryngeal and marked digestive disturbance.

UNFAVORABLE CASES.

Those with marked symptoms of digestive and laryngeal disturbance, accompanied with fluctuations of temperature, hectic flushes, night sweats, great loss of flesh, occasional diarrhea and general malaise; even when accompanied by comparatively few abnormal signs in the lungs. These form the chief number of the rejected cases having been sent as incipient because of the lack of abnormal signs in the lungs alone, regardless of other more important factors. It is almost needless to say that patients with the above symptoms, combined with evidence of consolidation and cavity formation in the lungs, cannot be admitted under any conditions."

The tubercular bacilli were found in 83 per cent. of all cases, and in many of the remainder, the physical signs were well marked; some gave marked reaction to tuberculin. Fifty per cent. had suffered from Hemoptysis.

Of the patients in Dr. Clapp's care, there were of the incipient, including *well marked* incipient, 62 per cent.; advanced, 33 per cent.; far advanced, 5 per cent. In this latter class none were cured, though 38 per cent. were somewhat improved. In the different institutions, the average duration of symptoms previous to admission was 12 to 15 months.

Treatment.—I would place first, the regular systematic modes of living. Every patient should be made to subscribe to certain definite rules and regulations.

Pure air is given a very important place. Patients are out of doors all the time possible, day and night, sleeping in hammocks or in their beds on the veranda. The windows in the wards are large and are open to their full extent summer and winter, excepting in stormy weather, and when the patients dress and retire. An effort is made to warm the wards in winter, but you can imagine with what success, when the windows are open.

One patient, a doctor, slept on a bedstead so constructed that his head could project through the window. He slept this way the entire winter, excepting when a storm arose, he could roll himself or his head inside, without getting up. Cloth screens were placed in the windows at the Sharon institution in stormy weather, which would admit air and at the same time keep out the rain and snow.

Both the men and women form small companies, select a captain and build camps in the forest. Many of these were very rustic. They are allowed a stove, but a hard and fast rule is that one full side of the camp shall be open.

I would place diet next on the list, and you can get an idea of the quality of the food used, by the amount paid for different articles. In round numbers, the meat cost $13,000; milk, $6,000; butter, $3,500; eggs,

$3,500, all other articles combined, $7,000. Thus meat, eggs, milk and its products constitutes 80 per cent. of the entire food supply. The patients are obliged to sit at table and be present at lunches whether they eat or not, but, of course, they are tempted to nibble to fill in the time. The lunches consist usually of milk and eggs.

Exercise is insisted on for all patients not having fever, but not to the point of fatigue, though in exceptional cases, slight exercise is better even for fever patients than absolute rest. Walking, games and light work on the farm, in pleasant weather, and indoor games when the weather is stormy, fill up the time.

Hydrotherapeutics and sun baths should be given more attention as aids in treatment than they now receive. There is a Persian proverb, "Where the sun and air do not enter, the physician enters often." In several of the Sanatoriums, the patients took a cold douche every morning, lasting from five to twenty-five seconds, with the temperature of the water from 60° to 40° F. according to the age and strength of the patient. The principal point to be observed is a thorough reaction to be obtained by a brisk rubbing with a Turkish towel, until the skin has a reddish hue.

Solariums made entirely of glass are much used and appreciated by the occupants, but I did not see any arrangement whereby the cutaneous surface of the body could be exposed to the tonic influence of the sun's rays.

The pneumatic cabinet was systematically used at the Sharon institution. The partial vacuum produced within the cabinet reduces the atmospheric pressure one pound to the inch and thereby reduces the congestion in the lungs, as shown by the absence of blood in the sputum, often after one or two treatments. Tuberculin is used in nearly all the institutions as a means of diagnosis, but in only one instance did I see it used as a regular treatment, in a few selected cases. I heard nothing of serums whatever. Neither did I learn anything new in regard to medicinal treatment as a curative agent, and this paper is already far too long to speak of the symptomatic treatment. These institutions, without exception, regarded alcohol, as a regular treatment, as unnecessary and unwise.

In regard to our most important question —how many are cured?—I will refer to a general summary of reports.

They do not use the term cured, but apparently cured or arrested, which indicates cases in which the phthisical cough, fever, etc., are practically gone, no tubercle bacilli being found in the sputum, and the physical signs either having entirely disappeared, or, if any remain, indicating a healed lesion. In the incipient cases, there were apparently cured or arrested 60 to 67 per cent. In the moderately advanced cases from 15 to 23 per cent. In the far advanced, none. There were in all cases accepted from 45 to 50 per cent. apparently cured. The average stay in the institutions was about six months.

The subsequent history of the discharged patients is followed very carefully, and is, in the main, remarkably encouraging, especially when they have been able to continue the hygienic rules of living. Letters of inquiry are sent out, and when possible, physical examinations are made from time to time.

In the subsequent history of thirty-five cases heard from two years after discharge, all were alive, and there were only three relapses. Of the fifty-six cases tabulated as arrested and discharged in the years 1899 and 1900, all were alive and in good condition with the exception of four relapses. A small percentage of those discharged as "improved" have, by following the hygienic modes of living, had their disease completely arrested.

While the results of treatment are thus encouraging, the expenses of the Sanatorium modes of living are not within the reach of the masses.

The lowest report of the expense per capita, per week, was $8.89, the highest $13. The cost of food alone would average $4 per week. None of the institutions I visited were self-supporting. They were cared for in a large measure by the State, the Church, or by philanthropists. In The Sanatorium Gabriels, a large Catholic institution, the work from matron to kitchen is done by the sisters. J. P. Morgan stands behind the Loomis Sanatorium at Liberty, N. Y.

There are now some forty of these institutions in the United States, and Europe is far in advance of this country in the care of consumptives.

Deductions.—This "Great White Plague" destroys its millions annually, and its victims are cut down in the very prime of life very largely between the ages of 20 and 40 years.

This plague is curable beyond a doubt in the incipient stages, and the percentage of cures is in a direct ratio to its stage of advancement.

The most essential and the most effective treatment for the prevention and cure of consumption is the strict observance of nature's hygienic laws, and in many cases the environment is such that they can only be carried out in some institution for that purpose. Hygiene first; climate, altitude and drugs, while they are not to be undervalued, must be classed as secondary agents. Houses, stores and factories should have complete systems of ventilation.

All persons predisposed to this disease, whether by heredity or susceptibility, by conformation of the chest, or any cause whatsoever, should, so far as possible, take this fact into consideration in choosing their life calling or occupation.

If war or any dire calamity, with a fatality equal to that of tuberculosis, should menace us, the whole nation would be up in arms in a day, but consumption has so long been regarded as a hopeless disease that we sleep on while so many of our ablest and best are prematurely garnered by this not invincible foe.

In closing this paper I will quote Lord Beaconsfield's celebrated words: "The atmosphere in which we live has more to do with human happiness than all the accidents of fortune and all the acts of governments."

THE ART OF PROGNOSIS.

To the patient there is usually no more important question which he has to ask his physician than that which has to do with the final outcome of his malady. "Am I going to get well?" "When am I going to get well?" "Am I going to get entirely well?"

There is no physician who does not have these and similar questions put to him daily and his answers to them stamp him as wise or the reverse.

Wisdom in prognosis usually comes to the physician somewhat late in life and as the result of long experience. It would, perhaps, be hard to say which extreme of temperament is the most dangerous in medicine, the completely optimistic, or the completely pessimistic, although if we had to choose we would select the former. It would be well, especially for the young physician, to have impressed upon his mind the knowledge that there are very few maladies, no matter how mild they seem at first, which may not terminate fatally, and that, on the other hand, it is very rarely possible to say positively, in any given case, no matter how grave the patient's condition may seem, that he is going to die. Tumors, in spite of apparently conclusive evidence of malignancy, may not be malignant, and even undoubtedly malignant tumors have disappeared without operation, and left no trace behind them. Patients, apparently in the last stages of pulmonary tuberculosis, have recovered and lived many years in excellent health, not infrequently outliving the physician who had doomed them to a speedy death, and many a person has recovered from typhoid fever, pneumonia, or some other acute illness, after the physician had given up hope and declared positively that death was but a matter of hours. On the other hand, few physicians have escaped the experience of seeing apparently trifling ailments develop most unexpected symptoms and proceed rapidly to a fatal termination.

Caution in prognosis should always be exercised, and while it is much better to have a patient recover after we have prophesied death, than to have him die when we have made light of his illness, it must not be forgotten that a cheerful prognosis is often an important factor in aiding recovery, and that to tell a patient that he is not going to get well is quite likely to be the cause of hastening his death.

There are certain physicians whose patients are always "threatened" with some grave disease; with them every sore throat is a "threatened" diphtheria, every cough is a "threatened" consumption, and every diarrhea is a "threatened" typhoid fever, and after frightening the patient and his friends unnecessarily they take great credit to themselves for having broken up the "threatened" disease and saved the patient from a lingering and perhaps fatal illness. Such practice is the veriest charlatanry and is mentioned only to be condemned.

Caution in prognosis is wise and to be commended, but not deliberate deceit. Occasions, to be sure, will not infrequently arise, when the physician will rightly decide that the whole truth, so far as it appears to him, should not be told to the patient, on account of the depressing effect it may have upon him, but under such circumstances, particularly when the patient may have important business affairs to arrange, some member of the family or some friend, should share the responsibility of concealing the actual state of affairs from the sick one and of deciding how far the real condition may be concealed and how much, of what is believed to be the truth, shall be told him.

Among the many responsibilities which physicians are called upon to assume, few call for more tact or more knowledge of human nature, than the giving of prognosis, and it would be well if teachers of medicine would give a little more prominence to this important subject, not so much in detail as regards individual diseases, but as regards the subject in general.—*St. Paul Med. Jour.*

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THE BINTURONG OR BEAR-CAT.

A VERY fine example of the Binturong (Arctictis binturong) has just been received at the Zoological Gardens, and placed in the small mammal house. This curious animal is a native of the East Indies, ranging from Assam southward through Siam and the Malay Peninsula to Sumatra and Java. A large specimen will measure about five feet in total length, of which the tail counts for nearly a half. The long, coarse hair is black, with a gray wash on the head and forelimbs, and there is a little white over the eyes and on the throat; the ears are short, and carry long tufts of hair. Its English book name, "bear cat," is modelled on its generic appellation, and records the difficulty early naturalists experienced in ascertaining the animal's true place in their schemes of classification. Although it was at one time placed with the bears, it is now regarded as closely allied to the palm civets. In matters of diet, the binturong is not hard to please. When opportunity serves it will take small mammals, birds, insects and worms; when these cannot be procured, it will support itself on fruits, and in captivity, it will take fruits of all kinds readily. The binturong is more active by night than in the daytime, and lives almost entirely among the branches of the trees of the forest regions in which it is found. It is remarkable as being the only true mammal of the Eastern Hemisphere which has a prehensile tail. It can wind this organ around a branch, and thus the tail aids the animal in its arboreal life. Blyth showed, many years ago, that the young of this species could hang on to a bough by the tip of the tail. Whether the adults can suspend themselves in this manner has been doubted; there can, however, be no question that the tail is of considerable service to them, and that they use this "fifth hand" as a holdfast. The example which has just arrived at the gardens is nearly adult, and, though somewhat shy, is fairly tame, for, with a little coaxing, it will come to the front of the cage to take fruit from visitors. Like all new arrivals, however, it is somewhat distrustful. If one advances too near, it darts forward with a spitting noise like an angry cat, while the paw delivers a round handed blow, like that of a bear. An American golden plover (Charadrius dominicus) captured at sea between Australia and New-Caledonia, has been added to the aviaries. This species, which is a little smaller than the well known English bird, nests in the arctic regions of America, migrating as far south as Argentina on the east and Chili on the west in the winter. This bird must have been blown considerably out of its course, an accident that has more than once occurred in the Northern Hemisphere, for examples are recorded from Iceland, Scotland and Heligoland, and one specimen was obtained in Leadenhall Market.—*The London Post.*

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ABSOLUTE ZERO.

Professor Dewar has shown to pleasantly astonished Royal Institution audiences liquid oxygen, solid air, and his final triumph, liquid hydrogen and solid hydrogen. That was a very great triumph, and one which even five years ago was hardly thought to be a possible achievement. But there are no new gases to conquer, and even a sufficient quantity of helium for long experimenting would hardly carry Professor Dewar more than four or five degrees down that scale of minus temperatures of which only 15 degrees remain between what has been achieved already and the temperature of absolute zero. There remains only the tedious, hard, useful work of experiment in detail, and by such work alone can physicists hope to answer that fascinating question—What is the state of matter at the temperature of absolute zero, 274 degrees C. below the melting point of ice? At that temperature Sir William Crookes had said all life, all heat, all chemical reaction, and, as we may believe, all motion—by which he meant molecular motion—ceases. Other theorists have imagined the molecules of gas, at this temperature, to lie motionless "like dust at the bottom of the flask." But is this view the correct one? Does the grip of the molecular forces—to use Professor Dewar's expression—relax at the temperature when there is no heat at all? Some of his experiments certainly convey a doubt. As we approach this final lowest temperature metals and other bodies become harder and more resistent. And, as he showed was true in the case of ice, it is by no means certain that at this temperature a body assumes its greatest density.—*The London Morning Post.*

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, APRIL, 1903

PHYSIOLOGIC DROUTH.

THE Prohibitionists insist that drinking ruins more lives than any other curse or cause that can be mentioned. The intelligent hygienist knows that more people suffer and die from not drinking enough than from overdrinking. The proportion is probably a hundred to one.

Next to breathing drinking is a prime necessity of all animal life. Solid food may be dispensed with for a long period—40 or 50 days at a stretch, as proved by the experiments of Tanner and his imitators—but none of these fasting cranks attempted to get along without water, even for a day.

A recent writer in the medical press insists that, contrary to the usual acceptation, water is a food. He discourses logically and plausibly concerning "organized water" and its great and unrealized value as a nutritive. His contention is that it is not only valuable but actually indispensable at every stage of the digestive function. Physiologists and dietists long since recognized the fact that the adequate hydration of food is quite as important and necessary as its mastication.

Autoinfection, indigestion, dyspepsia, constipation—these constitute a quartet of symptoms or ailments prolific of more suffering and actual disease than any other group that could be named, and they are all directly induced and aggravated by neglect or abstemiousness in the matter of water-drinking.

The quantity of fluid daily required by every adult of average weight is estimated at 90 ounces. A majority of all the people, barring the beer guzzlers, do not average to consume one-half that quantity. The results are evident.

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DO IT NOW!

So many of us do all our best work *to-morrow,* and, alas, to-morrow never comes! Yesterday is a closed record. No blood of sacrifical beast nor prayer of priest can alter it or wipe it out. Our only hour is NOW. What we have resolved to do to-morrow counts nothing to our credit. We may take hope and nurse our courage if yesterday's deeds do not haunt and humiliate us. And what we do to-day will so soon add to the tell-tale record. For Macbeth uttered truth when he said:

To-morrow, and to-morrow, and to-morrow
Creeps in this petty pace from day to day
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusty death!

* *

THE BIRTH-RATE IN CHICAGO.

FROM the *Bulletin of the Health Department* of the "windy city" for Feb. 21 we extract the following, which in view of the cry of some statistical alarmists, is encouraging:

There has been some adverse criticism of the department's showing of an increasing birth-rate in Chicago, made in the bulletin of Feb. 14. The only point worthy of notice is that based upon an assumption that the work of the compulsory education officers resulted in a larger school enrollment in 1900 than in previous years.

While it is true that the children "placed in school" by these officers during the school year 1899-1900 is the highest in actual number shown in the table furnished in the report of the superintendent of "work since 1889," it is not so high in proportion to population as the number so "placed" in the school year 1890-91, as is shown by the following figures:

	1890.	1900.
Population	1,099,850	1,698,575
Placed in school	11,254	16,781

The number "placed in school" by the compulsory education officers in 1890 was in the proportion of 12.3 per 10,000 of population; in 1900 it was only 9.8 per 10,000 of population. If the same ratio had obtained in 1900 that did in 1890 the figures would have been 20,892 in the former year, instead of 16,781. Obviously the work of the compulsory education bureau in the school year 1900 did *not* contribute to the 5.3 per cent increase of the under-7 school enrollment of that year.

That the department's demonstrated 5.3 per cent. increase of the birth-rate between 1890 and 1900 is conservative is further proved by the following facts and figures: in 1890 the total *public* school enrollment was 135,541; in 1900 it was 225,861—an average annual increase of 6.6 per cent. Prior to 1892 the average annual increase of the *parochial* school enrollment was not quite 2.5 per cent. In 1892 this latter enrollment was 51,442; in 1898—the latest date when this enrollment was published by the board of education—it was 80,989, an increase of 57.4 per cent. in the six years, or an average annual increase of 9.5 per cent., as compared with the public school increase of 6.6 per cent. Obviously, again, the disproportionate increase of the parochial school enrollment has been at the expense of the public school enrollment—a matter to which attention was called in the annual report of the department for 1894.

All available trustworthy data most conservatively handled go to demonstrate that, while the birth-rate of the whole United States increased, according to the twelfth federal census, only 1.11 per cent. in the intercensal period 1890-1900, the birth-rate of Chicago increased *five times* as much, or more than 5.3 per cent., during the same period.

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NEWSPAPER SCIENCE.

Dr. H. W. Wiley, chief of the division of chemistry of the United States Department of Agriculture, should feel profoundly grateful to the *New York Evening Post* for setting him right on his proposed investigation of the effects of food preservatives on human digestion and general health. It will be recalled by most of our readers that Dr. Wiley has established a scientific boarding house wherein to study the effects of various preservatives upon a selected lot of healthy men. Very full records are kept showing the exact amounts and kinds of food consumed by each man, daily analyses of the excreta, the weight, etc.—in fact, everything that could have any bearing on the case. No man knows whether he is eating "doctored" food or not, as pure food is used part of the time. It is plain that such an exhaustive line of experimentation under the observation of such an expert as Dr. Wiley, with his trained assistants, should lead to some very valuable and trustworthy results.

Dr. Wiley, however, forgot to ask the *New York Evening Post* how it should be done, and therefore we fear it is all off. The *Post*, of course, knows more about it than Dr. Wiley, although that gentleman has somehow or other been accepted as an authority by practically all physicians and chemists. The *Post* cheerfully points out that experiments made on persons in health are valueless, so dyspeptics should have been chosen; it also furnishes the startling information that two individuals may not be equally susceptible to the same drug, which, of course, Dr. Wiley did not know! And finally, it suggests the appointment of an international commission to formulate the proper regulations.

This is a fair specimen of newspaper "science." An editor who probably would not know a test-tube from a spatula or a reagent from a wienerwurst calmly proceeds to criticise a man who is recognized the world over as an expert in a certain branch of chemistry. The same editor would probably, on the same day and with the same aplomb, point out the shortcomings of a Cooley or a Blackstone in law; prove, to his own satisfaction at least, that astronomers are all wrong in their calculations of interstellar distances; and show that before Edison attempts any more inventions he should learn something about electricity.

Versatile indeed is ye merrie newspaper editor—but somehow his "science" does not get into the textbooks!—*New Idea.*

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RIGHTS OF THE UNBORN.

Nothing could more pointedly indicate the advancing trend of thought in relation to the pressing and impending question of the physical and moral improvement of the race—for it is useless to try to dissociate the moral from the physical—than the radical, yet altogether logical position assumed by the Rev. John L. Scudder, pastor of the First Congregational Church of Jersey City, in a sermon delivered on the night of Washington's Birthday.

We quote a few of the more significant passages:

"The babe in the cradle is not only the center of attraction in the home; it is an important factor in many a social problem, and upon it the very race depends. As the physical health, the moral character, and the opportunity for an enjoyable life on the part of the child are largely determined by father and mother, their responsibility in bringing a human being into the world is grave, and should be thoroughly considered. No child has a right to exist unless there is a prospect of its possessing a good bodily constitution, and being properly cared for by its parents until capable of earning its own livelihood. If a man has no right to poison his child with arsenic or strychnine, he certainly has no right to bring a child into the world with the poison of hereditary disease in his blood.

"In the absence of suitable conscientiousness on the part of parents the State should intervene and give licenses to marry only to those who are healthy and fit to be fathers and mothers. The State has a right to place restrictions on marriage for the welfare of the future citizens. Inveterate paupers, hopeless drunkards, incorrigible paupers, insane and idiotic people, and such as are afflicted with consumption and other diseases likely to injure the next generation should be denied the privilege of wedlock. A birth forbidden by law should be construed as a criminal offense, and the parents should be punished by fine or imprisonment. Science and not caprice should be the arbiter of life, and domestic sentiment in some cases must be sacrificed in behalf of the general good.

"Poor people in our overcrowded cities, who allow themselves the luxury of six or eight children, when they know their income is not sufficient to properly feed and clothe and shelter them, are positively cruel. The workingman's ambition should be to rear two children instead of ten, as heretofore, and give his children an opportunity to taste a few of the good things of life. Let the rich have large families. They ought to have them, for they have the means to provide for them. President Roosevelt can well afford to advocate a multitudinous household, for he gets a salary of $50,000 a year, besides the income from an independent fortune. I wonder how he would enjoy his own advice if he had a dozen children and was getting $2 a day. Circumstances alter cases mightily. I claim the size of the family should be determined by the state of the pocketbook.

"We need have no sentimental anxiety over a lack of population. Immigration will prevent the country from being depopulated. A smaller population with a better distribution of the blessings of civilization among them would be most desirable."

AMERICAN NURSES.

Dr. Lorenz was asked if a woman could learn to do his operations.

The Herr Professor shook his head without a suspicion of regret in his expression.

"She could not," he said positively and decidedly. "The first requisite to perform what is called these bloodless operations is strength—a man's strength. One does not want to see that in a woman."

"A woman may be a diagnostician, a general practitioner, but never could she be a surgeon. To be a surgeon requires all the qualities she should not have."

"What should she be?" I asked.

"A nurse!" cried the doctor.

"Let me right here congratulate the American nation. Never till I came to this country have I known what a woman could be in the way of a nurse.

"In Austria they are women of any class, of any sort. They are women of little education. Here in America they are ladies—ladies! Never have I been so amazed. They are in aprons and caps, but they are educated, they are refined, they are charming. Never have I seen such a thing—never!

"You are so far ahead of us in this that I am lost in wonderment. You see how I appreciate what women may do, but say to them not to attempt to compete with my profession."—*American Journal of Nursing.*

ANOTHER TREATMENT OF IVY POISONING.

Dr. H. G. Klotz strongly advocates the following treatment: Mix 1 part of ichthyol with 1 to 3 parts of water and apply this on the affected area and for the space of an inch beyond by means of a tuft of absorbent cotton wound around a toothpick. The paint rapidly dries, forming a thin elastic film. Glycerin must not be added, since it prevents drying. The affected parts should first be washed with soap and water, or, if an ointment has previously been applied it should be wiped off with benzine. Small vesicles may be left undisturbed, but larger ones must be opened by cutting off the top with curved scissors. Large blebs should be laid open and the epidermal cover removed as in the treatment of burns before the ichthyol is applied. Such moist denuded surfaces may be covered by a thin layer of absorbent cotton. Where the swelling is very severe, pads of absorbent cotton, moistened with 1- to 2-per-cent. solutions of ichthyol, may be kept on during the first day; but ordinarily no treatment is necessary other than renewed painting with the 25- to 50-per-cent. solutions every four to eight hours, according to the symptoms, without removing the remains of the former applications. The successive layers of ichthyol form a skin which peels off after a few days, leaving a more or less healthy surface. If desired, the ichthyol may be washed off with soap and water at any time.

Several other authors (*ibid.*) contribute the following formulas for a topical application:

I.

Ichthyol	45 grn.
Lead Iodid	45 grn.
Ammonium	10 grn.
Petrolatum, to make	1 oz.

Externally!

II.

Sodium Sulphit	1 dr.
Glycerin	4 dr.
Camphor Water, to make	4 oz.

Externally!

* * *

TREATMENT OF DIPHTHERIA.

In an article on the "Treatment of Diphtheria," in *American Practitioner and News,* Dr. J. W. Pearce says: "To briefly relate, this is the way I treat diphtheria, and I have never lost a case. If I can get perfectly fresh antitoxin I give it, but if it cannot be had perfectly fresh I do not. Whether antitoxin is given or not, I give ecthol in full doses, appropriate for the age of the patient, every three hours, administered by the mouth. The entire fauces, larynx, and pharynx are sprayed with a mixture of ecthol and peroxid of hydrogen, three parts of the former to one of the latter, every fifteen to thirty minutes. Calomel in small doses is administered every hour until the bowels are thoroughly moved. Nourishing and supportive diet is given at short, regular intervals, and everything done to make the patient comfortable in the way of supplying fresh air, etc. I have been using this plan, modifying it to suit the needs of each individual case, for several years, and cannot recommend it in too glowing terms to my fellow practitioners, knowing that it will give good results and entire satisfaction if it is carefully and effectively administered and carried out. Nothing can save a patient in articulo mortis, and it is needless to try this in such cases, hoping to do something."

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POISONED BY HANDLING CARPETS.

Dr. Godfrey Taunton, a prominent specialist in the General Hospital at Birmingham, England, recently called attention to the danger of persons being poisoned by the dyes in their clothing, but graver danger may be experienced sometimes from the most inoffensive occupation. John Huskemeyer, of No. 308 Lewellyn street, this city, was taken to the City Hospital in a sorry plight from arsenical poisoning, which he had contracted from the handling of carpets. Huskemeyer, who is sixty-two years of age, has been employed as a carpet layer for many years, and the doctors maintain that the dyes, which, as a general rule, are fixed with arsenic, have been slowly absorbed into the system, greatly endangering his life. The case was first brought to the attention of one of the prominent specialists of the city on nervous diseases, who, upon finding that Huskemeyer was slow to improve under treatment, ordered him taken to the hospital and placed on his special service. The case is attracting unusual interest, as it is the first time that any one similarly afflicted under the circumstances has come under the notice of a Cincinnati physician, if not of physicians anywhere.—*The Cincinnati Commercial Tribune.*

* *

OBESITY.

L. M. Hunt, writing in the "Medicus," says:

1. Reduce fat by improving the general health, exercise the muscular tissues of the body rather than change to a radical diet.
2. Strengthen the muscular tissues by increasing the nitrogenous foods.
3. Keep the blood in good normal condition by cutting from the diet all sweets, severe acids, bulk foods, wines, alcoholic and malt liquors.
4. Use sufficient pure cool water to give free action to the skin and kidneys.
5. Eat sufficient food, but only twice a day.

Do not nibble between meals.

The mode of life and dietary of the average well-to-do person, especially as he nears middle age, undoubtedly tends to foster an accumulation of fat.

The skin frequently loses its brilliancy and life, and becomes reddened by the congestion of small veins, especially over the face. The brain power, like the rest of the body, is a little slow and dilatory in action; the will-power necessary to reduce this mass of flesh is frequently lacking.

The thin person is nervous, wiry, constantly on the go, and will consume, burn, and use twice as much food sometimes as the ordinary individual and still be thin.

One point to be remembered, in every line of feeding, is that the digestive organs must be kept in perfectly healthy condition. .

⁂

TOO PERSONAL.

Miss Clifton—Yes, she was furious about the way in which that paper reported her marriage.

Miss Avondale—Did it allude to her age?

Miss Clifton—Indirectly. It stated that "Miss Olde and Mr. Yale were married, the latter being a well-known collector of antiques."—*Saxby's Magazine.*

⁂

A REVELATION.

A Swedish tourist while in Paris ordered a beefsteak which when he got it was so tough that he thought he would try a chop, and so—knowing no French—cried, "Baa!" Whereupon the waiter calmly replied, "Oh, no, sir; Bow wow!"—*Svenskt Skämtlynne.*

⁂

SAYINGS OF THE WISE.

Politics is the science of exigencies.—Theodore Parker.

I will listen to anyone's convictions, but pray keep your doubts to yourself. I have plenty of my own.—Goethe.

Unhappy is the man for whom his own mother has not made all mothers venerable. —Richter.

'Tis sad work to be at that pass that the best trial of truth must be the multitude of believers in a crowd where the number of fools so much exceeds that of the wise. As if anything were so common as ignorance!—Montaigne.

All philosophy lies in two words, "sustain" and "abstain."—Epictetus.

⁂

STARTLING, BUT FUNNY.

THE physiology examination papers in the public schools, especially in the lower grades, seldom fail to contain the most startling facts. From a set of those papers one teacher gleaned this information.

"The eustachian tube passes from the voice box; it is a pipe from the outer to the middle ear."

She also learned that "the pelvis is a hollow-shaped bone containing the contestants."

Other information offered was, "Bronchial tubes carry the food after it is absorbed into the blood vessels above the heart." Again: "The object of respiration is to free blood vessels from unnecessary waste. It takes place through all pores of the skin, by the kidneys and by the liver."

Another teacher who had carefully explained the meaning of several words asked the pupils to write sentences using the words properly. The following were handed in to her:

"The conspirators entered into a plot to kill Queen Elizabeth. The consequence was that it put virulence into their characters and also caused their death."

"The plot of the conspirators was found out and their virulence plan destroyed."

"The mother of the prisoner was rested, and after the trial was acquiesce."

"The chairman was acquiesce with the act."

"They know by her acquiesce way that she would allow them to go."

Still another teacher who required her pupils to write definitions for a list of words received the following answers:

"Canonize means to stupefy."

"Acumulation is one of the process of nutrition."

"Hypothesis is something that is consumed."

⁂

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

A REMINISCENCE OF OLD NEW YORK.

In the early days of the Thirties, that portion of New York City known as Harlem was not the busy and built-up mart it now is, but a combination of village and country life. On the marshy meadows bordering the East River, the city sportsman could find much material in connection with which to exercise his sporting proclivities—woodcock, snipe and other gamy birds being then abundant. Or, if he wished to pose as an enthusiastic disciple of Isaac Walton, he was equally well pleased to find picturesque brooks running through green meadows that were bordered by tangled masses of weeds, alders, cottonwoods, etc., their clear waters dashing over mossy rocks, and then dropping into quiet pools, under the gnarled roots of old trees, where the sly trout was wont to hide from the midday sun. Or if one had a preference for a quiet restfulness from the busy hum of the city streets—Canal and Bleecker were *haut ton* then—he could indulge in his book and cigar, sitting under shady trees, listening to the tinkling of cowbells, the shrill soprano of cricket prima donnas, and to nature's well-represented choir of song birds, everywhere and always so conducive to peaceful quietness, and a disposition to luxuriate amid rural scenes and fresh country air.

The close proximity of the Harlem River, bordered with meadow land, wooded hills and thrifty farms, made this region a favorite resort for pleasure seekers who could divide their time between boating, bathing and fishing, since in those days the abundance of striped and black bass and weakfish furnished the best of excitement for many a day's sport, some of which are still fresh in the memory of the elder inhabitants who yet remain, and who take delight in recalling the good times of the past.

At that time it was not necessary to leave Manhattan Island to find genuine country enjoyments. The upper part of Third avenue was yet a veritable rural district, affording delightful rides and beautiful scenery. Many roadside inns were scattered along the country thoroughfare, among which between Harlem Lane, now 125th street, and the Harlem River, was a well-known hostelry kept by Jake Van Houten, whose robust and rather ponderous form gave visible evidence of his own well kept cuisine. To this was added his genial manner, welcoming the coming guest, ever ready to enjoy the broad joke and witty repartee, the ensemble constituting him the beau-ideal of a popular Boniface.

This roadside house embowered in trees and a showy, well kept garden, the broad roomy piazza with a close view of the picturesque river, presented a comfortable lounging place for city visitors after a long, dusty ride.

The Westchester stage coach from the other side of the river, stopped there for passengers on its way down town in early morning, returning in the afternoon of the same day. There were two coaches on the same route, and this was the only method of rapid transit to and from Harlem before the advent of railroads, excepting by private conveyances.

One bright October morning, the trees gorgeous in colored foliage, with the frosty crispness in the air so suggestive of the approaching Indian summer, two young men in a buggy, driving a fast horse dashed up to the hotel entrance. As the smiling landlord appeared, he was saluted:

"Hullo, Jake! how is the fishing to-day!"

"First rate, was the reply. You are just in time to take the tide at the flood. A gentleman yesterday caught a bass weighing five pounds."

"Now, Jake!" said one of the party, "take a pound off that fish—"

"No! damned if I will! Next time I tell the story, I will add another pound."

This repartee created a hearty laugh from the spectators, while the young men proceeded to make preparation for the day's fishing.

"Then," continued Jake, "Sam will furnish you all the bait and fishing tackle you may want, but, gentlemen, what time do you wish dinner to be ready? You must give Dinah plenty of time to cook the fish." So the two young men, we shall call Tom and Bill, agreed on the hour for dinner and started off for the day's sport.

Fishing was lively, and they returned to the hotel well pleased with their success.

Now the landlord's spouse, his "good vrow," as he called her, had gone down to the city, with daughter Mary for a day's shopping, and as he was ordinarily somewhat subjected to wifely discipline, he generally improved the time of her absence by having a good time.

Consequently, the host and guests dined together, wine was freely imbibed, joking good naturedly indulged in, for our worthy host was a good story teller; then followed a cloudy smoke on the front piazza.

In the wide hall running through the house was a large Dutch clock that Van Houten claimed as an heirloom in his family, coming from Holland a century ago. This clock was a wonderful time keeper, with its gilded ornamentation, the description of which, always made the owner eloquent, so that he slightly exaggerated the true facts of his inheritances.

Tom and Bill amusedly winking to one another, determined to have some fun over the clock, and as the big pendulum moved to and fro, Tom moved his hand in unison, saying, "There she goes, there she goes." Then turning to the landlord, said, "I'll bet you a bottle of wine you could not repeat those words, at the same time moving your hand, for one hour without stopping!"

"Done!" answered landlord Jake.

"I'll take the bet, and will add a box of cigars."

"Remember," continued Tom, "you are not to speak to anyone, but with your eyes watching the pendulum, you are to keep saying:

'Here she goes, there she goes,' for one hour, and we will sit on the piazza watching your performance."

The confident landlord began his task to win the bet.

After a while Dinah, the cook, appeared for some necessary instructions concerning household affairs.

"Here she goes, there she goes, here she goes, there she goes"—

"Lordy Massy! What is the matter with old Massa?" Then calling Sam, the two darkies peeped through the window at the strange antics of Marsa Jake.

Presently the return stage coach drove up to the door and mother and daughter appeared on the scene. Taking in the situation without suspecting its cause: "Go immediately for Dr. Schuyler," cried the sobbing wife, "my dear husband has gone crazy!"

But daughter Mary, innocently unconscious, was unfolding her purchases. "See Pop! My beautiful new dress!"

"Here she goes, there she goes," was all the reply he gave her.

Dr. Schuyler having examined the patient pronounced him on the verge of insanity. A hot foot bath was ordered, but with no effect; then a mustard plaster was applied to his neck at the base of the brain. Still no result from the heroic treatment.

Many suggestions were offered by sympathizing friends. The doctor finally determined to open a vein in the arm of his patient, saying, "It will certainly relieve the pressure on the brain." The arm of the supposed crazy man was bared, lancet produced ready to make the incision, when the clock struck five.

"Time up!" cried the martyred landlord, as he dashed the plaster from his blistered neck, drawing his parboiled feet from the pail, then rushing out on the piazza, shouting:

"I have won the bet."

But the perpertrators of the joke had vanished.

"Sam!" cried the excited man, "Where are those devils that were here?"

"Why, Massa Jake, gone half an hour ago. Drove out the stable yard."

The victimized landlord, looking around, soon discovered that the wine and cigars had also disappeared.

He then explained to his neighbors how the dod-blasted swindlers had acted. They had decamped without even paying for their dinners.

"Oh, Pop!" sighed the loving spouse.

"If I had stayed at home this miserable disgrace would never have happened."

JEANNETTE THORPE.

* *

IN BOSTON.

Little Tommy.—"Can I eat another piece of pie?"

Mamma (witheringly).—"I suppose you can."

Tommy.—"Well, *may* I?"

Mamma.—"No, dear, you may not."

Tommy.—"Darn grammar, anyway!"—S. J. BLOCK, *in Lippincott's.*

* *

PROGRESS AND PROMISE OF ELECTROTHERAPEUTICS.*

By SAMUEL S. WALLIAN, A.M., M.D.,

EVERY year in medical science new names are coined to designate new agencies or new phases of the old ones. Witness: Dietotherapy, thermotherapy, phototherapy, mechanotherapy, hydrotherapy, crounotherapy, pneumatotherapy, serotherapy, organotherapy, mental therapeutics, suggestion, hypnototherapy, etc., etc. Electrotherapy is not as new as some of the others, but it is now for the first time ready to be developed into a satisfactory science.

If it were to be renamed, in view of recent development, it might aptly be called biotherapy or dynamotherapy.

Thus far its power has been problematical and more or less untamable; hereafter it may be accounted positive, and perfectly amenable to intelligent guidance.

But the schools are yet lame, and the rising apostles of electric science, from their new vantage ground, must reinterpret its daily more and more audible language.

It is only very recently that physicists have learned some of the most important facts connected with electricity, among them, that acidulated water is much more readily broken up into hydrogen and oxygen by electrolytic action, and is also a much better conductor of the current, than plain water.

The knowledge we have of ions, or the electrochemic relations of the elements of the various chemic compounds, has been but recently acquired. We have learned to dissolve and dissociate electrolytes into cations and anions, and to describe the process with an approximate certainty and mathematic definiteness heretofore unknown to chemists. We have learned something, and are every day learning more of the nature of protoplasm, and have formulated working theories that open to us visions of the ultimate nature of life itself, permitting us to hope that we may eventually be able to artificially reproduce it at will.

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* From the *Medical Brief*

We have learned that life is at least mainly an electrochemic phenomenon due to this same process of protoplasmic gellation, together with the liberation of free-moving ions of varying valences, anions acting as stimulators and incitors of life manifestations, while cations suppress and inhibit physiologic activity.

We have learned something of an aggregation of protein molecules which we have named somacules, and of how these are suspended in an electrolytic fluid and can be changed by gellation, by heat, acids, electricity and the abstraction of water, from a condition named hydrosol to one of hydrogel.

We have further demonstrated that chemical affinity is neither more nor less than a manifestation of electromagnetism.

It is evident that the medical world is on the eve of a revival that approximates a revolution in the field of electrotherapeutics, and that the coming is to be the electrical age in the history of both science and medicine. This may be a promise that by and by medicine is to be lifted out of the realm of uncertainty, to take rank among the demonstrated sciences. It is also evidence that the medical world has been rapidly putting aside tradition and banishing the skeletons of mythology that have so long rattled and grinned in the musty closets of all the schools.

It seems unaccountable that doctors have all along been allowing laymen to coach them, especially in connection with medical electricity. As a matter of fact, laymen have practically built all the medical batteries in use, and they have not hesitated in giving the doctor stereotyped directions as to which pole—anode or cathode—to apply to the seat of the disease, and which to place on an "indifferent spot." It would be far less absurd for the tinker to teach the tailor, or for the pawnbroker to lecture the parson.

It follows that the professional man has either neglected to ground himself in the fundamental principles of electricity, or has been too busy with clinical experimentation to give any attention to electric technique. This is why so many doctors feel compelled to accept the *ipse dixit* of the mechanical manipulator as to the value of the different currents, the accuracy of ampere meters, coarse and fine or short and long coils, rapid and slow rheotomes, good and bad rheostats, or any of the other items of a bewildering display of often uselessly beautiful tricks and trappings.

In a recent and very interesting paper in the *Medical News,* Dr. Morton aptly says: "The medical electricity of to-day bears little resemblance to that in vogue only a brief decade ago. Time was, and that but a few years since, when so-called galvanism and faradism held complete sway in the ordinary medical mind. Galvanization and electrolysis—faradization and mechanical action—together with a mummery of metaphysical abstractions, were the shibboleth of conscientious practitioners and charlatans alike. This state of affairs was convenient for those in medicine and surgery, who, unwilling to inform themselves, could thus relegate electrotherapeutics to the hospital nurse, and equally convenient for the charlatan, who was thus invulnerable in his veil of mystery.

"But ignorance could not forever rule in the scorching light of the progress of modern science. Industrial and commercial needs forced electricity to its most strenuous paces and soon the infant electrotherapeutics followed after and (slowly, very slowly) grew stronger.

"First, medical electricity was put upon a purely physical basis. Then new ideas crept in and finally to-day we are on the eve of the broadest sort of generalizations which include electricity as a physical agency in the same category as light and heat and medicines themselves. For light and heat are but ether vibrations, as is also electricity, and the effect of medication by drugs would seem to be due to the free ion whose positive or negative charge determines its qualitative action.

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"The first great change which the use of the static-induced current and its modifications produced in the practice of electrotherapeutics was the electrification of the entire human organism at one and the same moment, in contradistinction to the older methods of local application. From this resulted a profound modification of the patient's metabolism, and as a consequence electrotherapeutics has now sprung from the position of a local, to that of a general treatment.

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"D'Arsonval has shown that the high potential, high frequency currents produce an increased output of heat, of water, of carbonic acid, of phosphates and of urea; in short, the oxidations or combustions are increased and tissue metamorphosis accelerated."

These are results that require constitutional and not merely local causes.

Prof. Morton is an expert, both by temperament and culture, and therefore speaks *ex cathedra*. He was the first to emphasize the immense importance of high potential and increased frequency in connection with the therapeutic use of the current. It was he who first divulged the meaning of "high tension" currents as evolved by the static machine, when he converted its output into intelligible phenomena under the name of the "Static Induced Current." Tesla, D'Arsonval, Oudin and Thompson, working along similar lines, or perhaps taking their cue from Morton, made further important discoveries; but they were quite as much adapters and perfecters as inventors.

The air is full of enthusiastic announcements of "great discoveries," each of which, according to its exploiters, is destined to revolutionize the practice of medicine, to banish disease and to prolong human life.

The exploiters of these new-old short-cuts to health—all of them mere reiterations of old formulas set to new music and made more attractive and plausible—ignore all reference to the causes of disease. Their whole effort is in the line of always cheap, but sometimes brilliant patchwork, or is an appeal to the delusive principle of stimulation, in some form—disguised alcohol, biting aromatics, bitter "tonics," or the still more deadly stimulo-narcotics—which simply call out the reserve stores of energy with which every normally healthy organism is constantly fortified; or else they benumb the senses into a fatal sense of security. Or, they invent new and ingenious charms and chimeras like "suggestion" or "Mental Healing," to take the place of drugs of all kinds. Not an obstruction is sought or removed, not an iota of vital energy is supplied. The original stock is again and again made the subject of strain and overwork, until it is finally exhausted, and the deluded patient succumbs.

All stimulation, except that of nutrition proper, is a process of accelerating metabolism, without supplying a grain of material with which to replace that which is worn out and liberated. It compels expenditure and elimination, without providing any pabulum for rebuilding and recuperation. The results are often temporarily flattering, but if persisted in always end in disaster.

The human organism is naturally endowed with a competent power of self-defense and reparation. If disease appears it is because this force has been impaired or exhausted. Disease is therefore essentially a lack of vital force. Vital force is the counterpart of nerve force, and it has now been shown that nerve force and electric force are so nearly identical that science can not point out the distinctions. This does not mean that every bolt of lightning or the death-dealing voltage of the dynamo is transmutable into living force! These are the crude, explosive and untamed manifestations of electric energy. To transmute artificially invoked electricity into available vital force has been the animus of all the recent investigations along this line. It is interesting to trace the history of the leading efforts in this direction.

In comparison with electric progress in mechanical and commercial directions, medical electricity has been limping along far in the rear. Here and there a reputable expert has done something to rescue the medical use of this agent from the undeserved odium and disrepute into which charlatans, pretenders and ignorant quacks had dragged it; but an overwhelming majority of the profession—ninety out of every hundred—have held aloof from its use, sometimes because of confusing evidence as to its occasional unreliability, the want of uniformly efficient methods of applying it, and the often contradictory reports of equally competent and honest manipulators. A few specialists have made a life study of its many modifications, but most of them have been baffled, or have been content to realize a little better means of utilizing so-called "high tension" currents, and to devise more and more showy apparatus for increasing spark lengths and static breezes, without always being quite sure of their nature, value or limitations.

Volta, playing with a column of coins, deduced the rudimentary basis of the Voltaic "pile;" Galvani tickling the skinned hind legs of dead batrachians, inferred the law of galvanism; Faraday carried the inference enough further to illustrate the principle of the induction coil; Franklin coaxed the current from the clouds and bottled it; Morse halter-broke it and taught it its letters; Bell and Berliner released its tongue-tie and enabled it to talk back; Tesla tamed it and turned it into controllable channels and currency of the realm; Marconi has emancipated it from its wire tethers and sends it hurtling through trackless and untrammeled space; Roentgen blundered upon a mysterious phase of the current which he felt incompetent to name, but which has shed an all-piercing ray on some of its formerly undreamed-of powers, a discovery that evidently astounded him, and has startled the medical world as from a long slumber. It is a revelation that is so radically different from other advances in electrotherapeutics that it has well-nigh wiped from the medical blackboard all the existing traditions and milk-and-water platitudes concerning the nature and limitations of medical electricity.

It is evident that the most enthusiastic efforts with galvanism, faradism, franklinism, the wall plate, wet and dry cells, and even with the X-ray, have been merely promising and partial, because half understood.

Some of the experts have all along felt that they are still groping in the dark and not realizing a hundredth part of the therapeutic potency of this omnipresent agent.

Nor have they been deceived by the fact that the announcement of the X-ray was heralded as if it had been a new planet, the restoration of the lost Pleiad, or the discovery of an asteroid with an undemonstrated orbit and incomputable momentum.

They realized that its discovery was purely an accident, its discoverer an obscure or unknown scientist, and the designation he gave it an admission that it belongs in the realm of the *terra incognita*.

This X-ray is an interesting incident in the final analysis and catalogue of electrical potencies and possibilities, but it, too, is but a fragment. With the vacuum tube as its theater of war, it is the battle royal of positive and negative. The result of the radiating or tangental blow of its aroused, opposed and accurately balanced poles or currents, cathode and anode, in a state of incessant attack and abrupt repulsion. It may be called a hypothetic illustration of the result of that impossible situation, "an irresistible force meeting with an immovable body."

But it is far from being a finality. The Genius of Invention knows no rest.

Dr. Topham, of Brooklyn, has further advanced the work of clearing the electro-medical atmosphere, by developing what in common parlance may be called a "new" current, and by furnishing a key to interpret the meaning and mystery of the ultraviolet ray. He has evolved a device which, with its own, appears to include all the modifications of the heretofore recognized currents, and to bring them under perfect control, within the scope of a single apparatus.

If it were possible to describe this latest exponent and interpreter of electrical potencies and possibilities, by a name, it might be called the Radio-Visible, Vital Transmuter. But names signify little, and none can be invented that will adequately indicate its nature and scope. It is the culmination of years of inventive effort.

The result is an instrument and a system that it is embarrassing to try to describe because it is apparently incomparable with any device heretofore known to electrical inventors. It is a revelation in its field.

When we say it produces a "new current" the expression needs qualification. Contrary to the popular misconception, no machine, whether electrical battery, friction plates, or powerful dynamo, "generates" electricity. Electricity is the primal and underlying force of the universe, and therefore omnipresent. These contrivances merely divert it into artificial or unusual channels, and modify its manifestations—harness it for practical use.

The therapeutic potency of this "new" current—again adopting the hackneyed expression—to say nothing of its immeasurably greater range of applicability and convenience, can be estimated only by those who have watched its operations, and noted the clinical results already attained.

This current is audible as well as visible, but this feature is scarcely remarkable in an apparatus which otherwise sets at naught all the conventional rules heretofore recognized as indispensable in the manipulation of electric force. For example, the word insulation, so long a *sine qua non*, has now been robbed of half of its significance. This new phase of electric force can be applied with almost equal facility and effect through ordinary conductors and through so-called non-conductors—wood, wool, silk, rubber, the atmosphere—even glass. It traverses all these so promptly and freely that the word "resistance" has lost much of its significance. Glass is used as a preferable material for the construction of electrodes, whereas all the authorities teach that glass is an effective non-conductor. Another of the semi-sacred canons of yesterday's authorities requires that in applying an electric current to the body there must be intimate and constant contact, and for satisfactory results must be made more perfect by keeping the electrodes moistened with a saline solution, or with acidulated water. The new current, as would be inferred from the statement concerning conductors and non-conductors, dispenses with all this and can be effectively applied through the patient's clothing, regardless of the latter's thickness or material.

Nor does it require the completion of a circuit in order to manifest itself. Once this would have been pronounced a scientific impossibility. Assertion, however, neither makes nor unmakes facts. Recent apparatus apparently does both, since the current can now be applied, using but one electrode; that is, there need be no circuit, in the sense in which this term is generally understood, although there must be, as in Marconi's system, an aeroterrestrial circuit.

To attain these apparently unaccountable results the coil used in the latest form of apparatus cited contains more than a quarter of a million feet of insulated wire, specially fine and specially manufactured for this use. This is not much like the ordinary coils in use, few of which contain more than hundreds, or at most, a few thousands of feet.

Thus far we have described only the leading characteristics of the "new" current, its visibility, radiance, irresistibility, and the unparalleled length of its coil.

As accessories and auxiliaries, apparatus now available contains a number of ingenious devices which contribute toward making a most comprehensive and effective armamentarium for electrotherapeutic manipulation. It includes a motor which has numerous uses, a pair of air pumps, an ozone generator, and an electric heater by which either filtered and dried air or ozone can be raised to any desired temperature, for use in the treatment of asthmatic, bronchial and other catarrhal troubles. It has also a very sensitive magneto-meter by which to test the conductivity of the nervous system, a step towards enabling the diagnostician to substitute science for guesswork in diagnosing many obscure conditions of the human system, since it is well known that the real or physiologic age often gives the lie to the record in the family Bible.

It is entirely plausible, in view of what has now been demonstrated, that we can hereafter succeed in disclosing phases of chronic disease that now baffle the astutest diagnostician, and this is a long step in advance.

In corroboration of the claim that this device is an accurate test of the vital stamina of the human system, patients show a decided increase in registration after a general immersion of the entire body in the electro-magnetic zone.

Positive benefits and definite effects are thus apparently mathematically demonstrated.

Faith is always a valuable adjunct to any treatment, and is a *sine qua non* in many systems of practice in vogue. With this instrument it would seem to be not at all a necessity.

Other accessories include a very sensitive audiometer to test the hearing capacity of the subject, and a mechanical massage vibrator, by which any set of nerves or muscles can be efficiently and agreeably electro-massaged, at the rate of two thousand five hundred vibrations or percussions per minute.

"Curealls" do not stand in high repute in medical circles, but if any force or agency can be made to restore vital equilibrium, it logically merits the name, because in doing this, it enables Nature to effect her own repairs; for it is now conceded that under every system Nature really does all the curing. Our efforts as physicians are successful just in proportion as they help or hinder Nature—contribute to and restore vital force.

With these new facilities, therapeutic fields are being invaded that have heretofore constituted the *opprobriæ medicinæ*, since conditions and diseases heretofore amenable to no known remedy are being attacked with well-grounded assurance.

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ARE ADVANTAGES DISADVANTAGEOUS?

Whether the toastmaster who introduced one of the speakers at the dinner of the Arkwright Club a few nights ago spoke both facetiously and wisely, or only facetiously, when he described him as one "who has been, and is, a striking example of the attainment of success, usefulness, and honor in spite of early advantages of wealth and ancestry," might be discussed with profit by those who have a taste for genealogies. Are wealth and ancestry handicaps which so heavily weight an aspirant for success and honor that when he wins in spite of them, he is entitled to extra credit? Frankly, we do not believe it. The number of those of obscure origin who attain conspicuous success in life is very much greater than the number of those born to the advantages of wealth and a distinguished ancestry who do this, for precisely the reason that white sheep yield more wool than black sheep—there are a great many more of them. It should also be remembered that to maintain a high level of intellectuality and general capacity is much less conspicuous than to rise from the obscurity of poverty and illiteracy to a place of influence and honor.

To say that wealth and a distinguished ancestry are a handicap to one who wishes to be in the highest degree useful in life is no more true than it would be to say the same of a good constitution or a system free from hereditary taint. To say that they diminish the incentive to struggle with and overcome obstacles is true enough, since one who starts with great advantages does not have so far to lift himself and need not do as much hard work in hand-over-hand climbing. That in many instances the sons of rich and even great men show degeneracy and relapse into obscurity is unquestionably true. but it would not be difficult to show that poverty, an illiterate ancestry, and the lack of incentive to self-improvement hold millions annually at the bottom round of the social ladder, because they are incomparably better fitted to stay there than to ascend. Heredity counts for a great deal, and it is a safe generalization that the better a man's ancestry the better his chances of developing a high, well-directed, and sustained ambition. That this is not an inflexible law of nature is a cause for congratulation. If it were, society would gradually stratify into castes. As it is, the fact that some are steadily sinking from the top to the bottom while more are as steadily, and much more rapidly, rising from the bottom to the top, and that between the bottom and the top is the great mass of solid, commonplace, right-minded citizenship to which the highest and the lowest strata contribute with every generation, establishes the existence and operation of a law not founded on a sentimental concept of the disadvantage of advantages nor of the advantage of disadvantages.—*N. Y. Times*.

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SURGEONS IN THE DAYS OF ELIZABETH.

At the present day surgery takes so high a place and so dominates the professional horizon, that it is difficult to realize how subordinate a position the surgeon occupied in early days in all his relations with the physician. As for the apothecary, who was a tradesman selling drugs and compounding prescriptions, it was natural enough that he should occupy a very humble position in comparison with the physician, who at least posed as a man of learning. But that the surgeon, who nowadays so rules the roost, should until recent times have had to bow so low to the physician suggests what is indeed the truth that surgery has in recent times been far more progressive as an art than medicine. In an interesting address on the Elizabethan Revival of Surgery, delivered before a meeting of the Elizabethan Literary Society, Mr. D'Arcy Power tells us that from very early times in England the surgeons had felt it a grievance that they were not allowed to take complete charge of their patients. They were looked upon merely as craftsmen, able indeed to wield the knife and saw, but wholly incapable of ordering medicine or regulating the diet of those upon whom they had operated. To such an extent was this view carried that a physician had to be called on every occasion if more than a trifling change was required in the regimen or medicine, the surgeon being thus kept in quite a subordinate position. This was not unnaturally felt by the better class of surgeons to be an intolerable hardship, and they devoted themselves actively to promote the unity of medicine and surgery. But the power of the physicians was too great, and instead of being able to free themselves they were soon in a worse plight than before, for in 1632 the College of Physicians procured an order in Council with a clause to the effect that "no chirurgeon doe either dismember, trepan the head, open the chest or belly, cut for the stone, or do any great operation with his hand upon the body of any person, but in the presence of a learned physician, one or more of the College or of his Majesty's physicians." Mr. D'Arcy Power says that it was not until after the year 1800 that a hospital surgeon was allowed complete control of his cases.

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BUNIONS AND THEIR TREATMENT.

By Robert T. Morris, M.D.,
New York City.

The tendency in the treatment of bunions is to do too much or too little, although, perhaps, the latter fault is the prevailing one.

The common site for the beginning of bunion formation is at the bursa on the inner surface of the head of the first metatarsal bone, and a tight shoe is usually responsible for the bursitis which represents the first stage in the development of the deformity. Incidentally the tight shoe is apt to crowd the phalanges of the great toe toward the outer side of the foot, but this, while adding to the deformity, is probably not an essential part of the disease, although it is usually classed as such.

With the progressing bursitis three important changes take place:

1. The synovial sheath of the bursa becomes thickened and hypertrophied in its attempt to secrete enough synovia to protect the region.

2. We have the development of a bony protuberance by hyperostosis beneath the bursa.

3. This change consists in the formation of a thick, horny layer of cuticle similar to an ordinary corn.

Aside from the local pain at the site of the bunion caused by pressure effects on the hypertrophy, we have a secondary cause for inflammation in many cases due to the disinclination of the patient to walk or exercise sufficiently to transform the proteids in his food, and lithemia naturally develops.

If we have a gouty form of uric acid inflammation developing as a result of the lithemia, the patient may suffer from podagra in addition to the results of pressure.

The common forms of palliative treatment, consisting in the use of perforated plasters and removal of the horny layer of cuticle, are not very efficient because of the hypertrophied structure beneath, which will not disappear under anything short of mechanical means.

The older operations aimed at removing the entire head of the first metatarsal bone, and this commonly resulted in a stiff joint which was in itself a source of much discomfort. If we did not have a sufficiently close union to give a stiff joint, the sharp edge of the metatarsal bone, resulting from exsection, would sometimes cut into the tissues of the sole of the foot, so that it became necessary to exsect the heads of all of the metatarsal bones.

As a matter of fact a very simple operation will suffice to give relief in many cases of bunions.

Operation.—A longitudinal incision, not more than half or three-quarters of an inch in length, along the line of the inner surface of the extensor tendons, exposes the site of the hyperostosis, and a sharp chisel separates the button of the bone readily from the head of the metatarsal bone. The open bursa can then be trimmed out with a pair of scissors without difficulty, and when the wound is sutured and the skin pressed against the surface of bone from which the button was removed, it becomes quickly adherent and the bunion is at an end.

This treatment will suffice to give comfort in most cases and no further operative work is necessary, but if the patient wishes to have the phalanges of the great toe placed in normal line with the metatarsal bone it is necessary to divide the external ligament of the metatarso-phalangeal articulation. This can be done subcutaneously, but in doing so we cannot avoid cutting a pretty large branch of the dorsalis pedis artery, as a rule.

Hemorrhage from this cut artery we can usually disregard if a small, round, gauze pad is strapped firmly down upon the dorsum of the foot at this point beneath a light splint. We must inform the patient, however, that sometimes it becomes necessary to enlarge the incision and ligate the artery. I have not been obliged to do this as yet, but have had to exercise a certain amount of skill in making proper application of pressure.

After the simple operation of removing the button of bone, and the thick bursa, very little further treatment is required, and the patient may be allowed to walk in from 10 to 12 days.

In cases, however, in which it has been thought desirable to correct the hallux valgus by division of the external lateral ligament, we must apply a splint to be worn inside the shoe, which will hold the phalanges in place for several months. A very good splint is made by hammering a piece of sheet copper into the shape of the sole of the foot, and turning up a flange which corresponds to the external surface of the great toe. A special stocking is then made with a separate compartment for the great toe, so that the flange from the splint can be interposed between the great toe and the next one.

Very few patients are more grateful than the ones upon whom we operate for the cure of bunions, and it does not seem to be generally known by the laity that we can remove this deformity.

Not long ago, while in a country store, one of the old inhabitants who occupied a cracker box, said to me—without knowing that I was a physician—that no one could cure bunions, and remarked very impressively that he would give $100 to any one who could cure his. I told him that the usual price for curing them was about twice what he offered, but that it could be done very easily and for nothing at all, if he was not able to pay what the services were commonly considered to be worth.—*International Journal of Surgery.*

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A QUESTION OF GRAMMAR.

"I IS," began Tommy, when his teacher interrupted him.

"That is wrong. You should say, 'I am.' "

"All right," said Tommy. "I am the ninth letter of the alphabet."

SOMETHING BETTER THAN MEDICINE.

An American, with the rare faculty for seeing things exactly as they are, managed to gain admission to a reception to a large Italian pilgrimage in the Sistine Chapel a few weeks ago. When the Pope was brought in he saw the frail figure and strangely white face he had expected to see; but he was surprised by the animation, the aliveness, of the features and gestures in response to the deafening shouts and cheers of the pilgrims. His astonishment became amazement when the Pope descended from the chair, walked to the rostrum, took off his heavy stole and handed it to an attendant, straightened himself, and in a firm, resonant voice proceeded to deliver a ten-minute oration—a swift flood of eloquent and energetic words, emphasized by gesticulation that was continuous and forceful. And for an hour afterward the Pope sat talking and laughing with the heads of the several delegations into which the pilgrimage was divided.

Away back in 1875, when the Papal election was holding, Leo XIII was chosen as a compromise because the rival candidates, looking at him as he sat among them, the Cardinals thought that one so frail and white would not long postpone another attempt to achieve their ambition. That will be a quarter of a century ago on February 20, and within three months Leo will be ninety-three years old. He has never been outside the grounds of the Vatican since he was hailed Pope. The Vatican is on the most unhealthful of the hills of Rome. He was born a physical weakling, has been inclined to sickness all his life. Yet every day he has toiled and toils more hours than tradesmen permit their sturdy adherents to toil; for 25 years he has personally directed the policies and acts of his world-embracing church, even to details; he has been harassed by the most vexatious problems that have disturbed Catholic Rome since the days of Luther. And when he became Pope he had been hard at work for 50 years.

Why has he lived? Why has he been able to work and work hard and well at the most exhausting of all labor? How has he withstood that fatal combination—work and worry? Why has he not been compelled to take "long vacations" and "much needed rests?" Why has he never been down with "nervous prostration?"

The answer to all of these questions is in two words:

Regularity. Diet.

The human body is nothing but a strong, delicate machine. It must be treated as a machine. It must be run regularly; it must be rested regularly; it must be repaired regularly. True, a priest can be regular with greater ease than many men of business or of the other professions. But it is also true that a man in any walk of life can compel himself to regularity—provided he has a serious definite purpose on earth and sets about it intelligently and not like a child given the range of a confectionery. It is possible for any man to rise and to go to bed at the same hours every day, to arrange his physical life in just as orderly fashion as he must arrange his mental life if he accomplishes anything at all.

But the great secret of Leo's power and capacity in spite of his feeble body and his ninety-two years is, diet. Diet means enough fuel—plenty, but not fuel to choke the furnace.

The Pope eats for the good of his body, not for the amusement of his palate. He lets his mind tell him when to stop, not greedy, blind, selfish, appetite. He eats so little that the average man or woman would call it starvation. But he eats enough, and it is of the best quality. At times he overeats—for the appetite for food is the strongest, the most insidious, the most dangerous in the human body. He is promptly punished, his feebleness making him luckier in that respect than are most overeaters. He doesn't then let his palate cajole and fool him into thinking he is ill because he eats too little: he doesn't eat more and send out for a package of pepsin chewing gum or a box of digestive tablets. He apologizes by eating nothing for a while and returns to his routine.

Possibly your doctor may not assent to this—he may like to eat, may have an appetite made morbid by years of over-stimulation; he may like to fancy that disease germs can find lodgment in healthy tissue, that headaches and nerve-aches and fever blisters and low spirits and "nervous prostration" come from overwork and "our modern neurotic atmosphere" and not from a stomach overloaded by "three square meals." How many of us are willing to lay down our lives or, worse still, to spend them in discomfort and sickness for the sake of "three square meals a day" in defiance of our sedentary habits?

But, whatever your doctor and you may convince yourself of, the truth remains. And Leo XIII, born a physical weakling, now nearly ninety-three, toiling like a beaver and weighted with responsibilities, is an unanswerable witness to that truth—and a splendid example of rational self-control. Overeat if you will. But don't blame germs or the weather or work for the results.—*Saturday Evening Post.*

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THE THERAPEUTIC VALUE OF PEPTO-MANGAN (GUDE).

Abstract of a Paper

By Dr. J. W. Frieser, Vienna, Austria.

The medicinal use of iron dates back to a remote period, and since ancient times ferruginous medication has played an important part in the treatment of anemic conditions.

Since it has become known through clinical observation and investigation that iron introduced into the organism exerts a favorable influence upon pathological states of the blood, and that in anemia and chlorosis, as well as in other anemic conditions, it causes an increase of the number of red blood cells and of the percentage of hemoglobin, chalybeate medication has attained the importance of being almost a specific in this class of disorders.

The field of indications for the medicinal use of iron is quite extensive, for, aside from anemia and chlorosis, it is called for in all diseases in which anemic conditions occur either during their course or as their sequel —in short, in all cases in which, through some pathological state or another, the integrity of the blood is affected and impaired in a greater or less degree. To this group belongs, first, the large number of constitutional affections, especially scrofula and rachitis; second, tuberculosis in certain stages of its development; third, certain nervous disorders which are commonly attended with anemia, such as neurasthenia and hysteria; fourth, all conditions of weakness and exhaustion following severe acute febrile diseases or appearing during the period of convalescence from other serious diseases; and, finally, the anemias arising in the course of chronic and wasting disease.

According to recent and thorough studies of this subject we have to deal in anemia and chlorosis, as well as in other anemic forms of disease, besides the loss of iron, with a marked diminution of the manganese, which, like iron, is not an unimportant constituent of the blood, and for this reason an adequate equivalent is necessary.

The number of ferruginous preparations at our disposal is much larger than in the case of any other medicaments, and almost daily we have an opportunity of acquainting ourselves with new remedies of this kind, so that, in view of the actual overflooding of the pharmaceutical market at the present time, it is not easy to find our way and to always make the proper choice.

It can be easily understood that the medical profession gives its full attention to any improvements in this domain, and especially in regard to the important criterion that the preparation under consideration must be of such character that it is easily absorbed, and hence can be utilized by the organism.

We are led more and more to recognize the fact (and this subject I have discussed in detail in a former contribution) that inorganic iron, owing to its slight absorbability and assimilability, as well as its difficult digestibility and its irritating action upon the mucous membrane of the digestive tract, is not at all adapted for the rational treatment of the forms of disease considered here, and that only iron of organic character which approximates in its composition to the iron present in our foods presents those advantages in improving the quality of the blood which conform most closely to the demands of a logical and successful therapy. In this connection I must refer to the view of Bunge, which nowadays is shared by nearly all clinicians and pharmacologists, that iron introduced in the inorganic form is either not at all absorbed by the intact mucous membrane of the gastro-intestinal tract, or only in minimum and therefore in inadequate quanities, and hence cannot be utilized for the formation of blood. Owing to this theory, which is forcing its way more and more to the front and is being accepted by many of the most vigorous adherents of the old iron therapy, the efforts of chemists have been more and more directed toward replacing the inorganic preparations of iron by easily assimilable and absorbable combinations, and from these have resulted iron albuminates and iron peptonates, which, on account of their superior properties, have steadily gained in popularity. That, in spite of the existing indication and the demonstrated favorable influence of iron in the above-mentioned diseases, the results of ferruginous medication are occasionally uncertain and imperfect is, in my opinion, due to the frequently incorrect choice of the preparation employed and to the routine method of administration.

Hence, in judging a ferruginous preparation, we must decide the important question as to what should be the requirements of a useful and efficient chalybeate in every direction if all demands are to be met in a scientific and practical manner. Above all, such a preparation must be capable in a high degree of absorption and assimilation, must be digestible, easily borne, palatable, and must not in any manner exert disturbing by-effects upon the functions of the organism.

According to my extensive observations, these postulates are fulfilled in a satisfactory manner by Pepto-Mangan (Gude). I have had frequent opportunities, in a considerable number of cases (42) in which the preparation was employed with success, to acquaint myself with its therapeutic value and its beneficial medicinal properties.

In the administration of Pepto-Mangan to anemic and chlorotic patients I have been able to make the positive observation that under its use the constitution of the blood underwent a very satisfactory and sometimes remarkable improvement, often after a comparatively short period of treatment. The examination of the blood frequently showed a rapid increase of the number of red blood cells and of the percentage of hemoglobin, this being attended by a marked improvement of the general health and an increase of strength. Its advantageous chemical composition and its excellent medicinal properties, such as easy assimilability, high absorption and assimilation power, and the absence of any deleterious or disturbing by-effect, illustrate particularly the advantages of this remedy, whose efficiency is evident in most cases.

Pepto-Mangan contains iron and manganese combined with peptone in the proper proportions and in a readily digestible and absorbable form, so that the preparation can be completely utilized by the organism. Under its administration the appetite and the digestion are stimulated in a very satisfactory manner.

As a rule, during treatment with Pepto-Mangan the improvement in the constitution of the blood, as shown by physical examination, was accompanied by a beneficial effect upon the general condition and strength. The appearance and appetite of the patients improved visibly; the digestion and nutrition progressed favorably, and the patient felt better, happier, and more vigorous. Disturbances of the gastro-intestinal tract, such as pressure or pain over the stomach, nausea, a disagreeable feeling of fulness, a diminution of appetite, constipation, congestions, etc., which are so frequent during the administration of other iron preparations, especially those of inorganic character, were scarcely ever observed during the use of Pepto-Mangan (Gude). On the contrary, in those cases in which there is a tendency to constipation and a marked atony of the gastric functions my experience has led me to regard this remedy as especially useful and effective. Under its administration the functions of the intestines, especially the peristalsis, are often stimulated in a remarkable manner, and the existing constipation yields to a regular condition of the bowels.

It seems to me particularly noteworthy that often, even after a brief use of Pepto-Mangan, the anemic appearances, especially the often marked apathy, lassitude, and drowsiness, the palpitations of the heart, and headache, disappeared in a very satisfactory manner, and that even in those patients who suffered from insomnia frequently a good refreshing sleep occurred. Even in those instances in which a variety of other ferruginous preparations had proved unavailable the prolonged use of Gude's Pepto-Mangan often gave very gratifying results, so that occasionally a manifest and positive cure occurred after four to six weeks' treatment.

In view of the recognized advantages of the preparation and the favorable results obtained with it, it should be esteemed as a very valuable acquisition to the materia medica, and can be warmly recommended for extensive use in the treatment of anemic conditions and chlorosis.

THE UNIVERSAL APPLE.

The latest estimate places the total number of apple trees of bearing age in the United States at something over two hundred million. This is nearly three trees to every person. These trees yield more than 175,000,000 bushels. Not all these apples are consumed at home, for in years of full crop more than three million bushels go abroad. Yet, the apples kept at home are more than two bushels for every adult and child. We are a nation of apple eaters This fact may not be to our credit, however, when we remember that a good part of all these apples are Ben Davis and other kinds that a refined and cultivated taste would not choose for its desert. Yet probably half our people never raise an apple; and of the half who do raise them but a small percentage grows for market; and of those who grow for market, only a part make a profit from the business. Yet there is money in apple growing.—*Country Life in America.*

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TESTING MILK.

According to A. W. Duncan, the simplest and best way to test milk for the two common preservatives, borax and boracic acid, is to evaporate half-an-ounce or less of the milk in a platinum or porcelain dish, and when dry burn to an ash. Moisten the ash, when cool, with a drop or two of strong sulphuric acid, stirring it together with a glass rod, and adding a small quantity of methylic alcohol or ordinary alcohol. Any boracic acid will dissolve, and on setting fire to the alcohol in a dark place, it will show itself as a green flame.

Formaldehyde.—Pour a small quantity of concentrated sulphuric acid into a test tube (good commercial acid is better than the pure, as the trace of iron therein aids the reaction). Incline the tube, and cautiously pour on to the surface the milk, so that they may not mix. Any of the preservative present will give a blue ring at the surface, where the acid and the milk are in contact. If no color appears immediately, allow the tube to stand a short time, and observe again.

I have often used these tests. These are the only preservatives in common use. Other preservatives are more difficult to test.

SOME THINGS NOT LEARNED ON THE BENCHES.

Dr. Rockwell (*American Medicine*) gives some shrewd advice on various subjects. The following are pregnant sayings:

The most important thing in therapeutics is a knowledge of what not to do.

The most dangerous member of society is the doctor who never makes a mistake.

In medicine, more truly than any other field of human activity, "all things are possible." It is well to bear this in mind.

He cannot obtain the highest professional success who only knows medicine.

Find out who "runs" the family, and then you "run" her—this discovery will prove of great value.

Administer medicine personally whenever possible. The dose you give has a higher curative potential than that administered by the patient's friends.

Never prescribe anything until you have perfectly definite and distinct reasons for so doing.

Don't blame your nurses for everything. They have some rights, and are not always conspiring to do your patient harm or put you out of the case.

Expedition in performance is almost as important as accuracy in performance. Do your work with precision and dispatch.

Never "give up" a patient.

This last piece of advice deserves to be written in letters of gold. Sir James Paget strongly urged that even in the most hopeless-looking cases of cancer the practitioner should never merely fold his hands in despair. This simply makes medical practice the "meditation on death" which was imputed to some of the old Greek physicians. The doctor should dispute every inch of ground with the enemy, and should take as his rule of conduct an adaptation of an old saying, "Dum spirat spero."

With regard to this point we may be allowed to relate an instructive story which, though it may have been told before, will bear repetition. A patient had an enlargement of the liver. Sir William Jenner, who was called in, with characteristic frankness, pronounced the disease to be cancer, for which there was nothing to be done, and went his way. The friends thus left to struggle with a hopeless situation sought counsel of another oracle. Sir Andrew Clark was summoned, and after careful examination agreed that there was a tumor which was not indeed of a benignant character, but which, if not exactly curable, could be considerably alleviated by the resources of medical science. Sir Andrew continued to attend the patient till his death several months afterwards; and even if his life was not prolonged, it was certainly made much less burdensome to himself and to those about him by the physician's *savoir faire.*

Don't tell your neurasthenic there is nothing the matter with him; it is not the truth.

Another conveys a counsel of perfection which it is often quite impossible to follow in practice—

If you cannot tell a patient the truth, don't tell him anything.

Perhaps the most valuable of all Dr. Rockwell's maxims is the following:

Possess yourself of an irresistible, indestructible optimism. It is the keystone of the arch, success.

We are reminded of the story of Sir Richard Quain's professional *début.* When a young man he was taken by an experienced physician to see a serious case. Before entering the sick room he composed his features to a gravity which he thought appropriate to the occasion, but was at once rebuked by his mentor, who exclaimed: "For heaven's sake, man, don't look so funereal! The poor devil will think you are the undertaker!"—*London Practitioner.*

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VOLCANIC GASES

M. Lacroix, the French observer of the volcanic phenomena of Mont Pelée, has communicated a report of what he saw during the latest eruptions last November. On the 18th, and again on the 28th, a burning cloud descended from the crater to the sea, and was probably such as destroyed Saint Pierre last May. It threw off white ashes, and took about six minutes to go from the crater to the sea. Red hot blocks of stone were also projected from the crater, and when cold were very friable.

It may be mentioned that M. Moissan, in analyzing the gas from Mont Pelée, found it to contain hydrogen, oxide of carbon, methane, and petrolene. Since the ashes of the eruption consist of andesite, a ferro-magnesian rock, Professor Gautier points out that steam acting on it at high temperature would produce abundance of hydrogen. If the steam also acted on carbonates it would generate oxide of carbon, and if it decomposed carbides it would give rise to methane and petrolene. There is, therefore, no need to suppose a previous inclusion of these gases in the rock.—*London Globe.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise." —*TISSOT.*

Edited by G. H. PATCHEN, M.D.

THE REMEDIAL POSSIBILITIES OF MASSAGE.

EVERY physician who has kept pace with the advance of medical progress has learned many things concerning disease and its treatment which were unknown to his predecessor of even a generation ago.

Among the most important of these items of medical knowledge are: 1st. That health and disease are both products; both the result of the operation of the very same organs and functions, health resulting when vital processes are vigorously and harmoniously performed, and disease occurring when the same processes are weak or inharmonious in their action.

2d. That faulty hygiene (accidents excepted) is the primary cause of all illness.

3d. That the same conditions and factors which most readily and perfectly maintain health affords, when intelligently modified and adopted, the best means for its restoration.

4th. That the *cure* of disease is always accomplished by the remedial force or energy of the system itself—the *vis medicatrix naturæ*—as some writers are pleased to call it.

5th. That this force cannot be directly conferred upon, or transferred to, the system, in the slightest degree, as an entity, but is the result always and only, of the vital process of nutrition.

This better understanding of disease and its remedial requirements not only broadens and simplifies medical practice, but is necessarily attended with important, and, in many instances, radical changes in methods of treatment.

The wise physician no longer assumes the role of an autocrat dictating to Nature the method she must pursue to overcome disease as well as the special manner in which the work must be done, but humbly adopts and closely follows the course which nature herself unmistakably indicates.

Nor is he satisfied with the limited effects which drugs are able to produce. He is aware that there exist other curative means and forces, as water, heat, cold, oxygen, electricity, exercise, diet, and massage, which are often more relevant and helpful than drugs because they more directly and powerfullly control the functional activities which, by either their excess or deficiency, constitute the disease. By the judicious use of these additional medical resources his percentage of cures is greatly augmented and his professional ability and skill correspondingly increased.

The fact that diseases can be cured in other ways than by the administration of drugs has led to the multiplication, within the profession, of specialists and specialism with the best of results. But as no good ever exists without attending evil, so this commendable outgrowth of medical progress is accompanied by undesirable and even censurable features, the chief of which is the harmful effects these simple but powerful remedies often produce when administered by persons unqualified by medical knowledge to use them in a proper manner. If the disastrous results arising from their improper use could be confined only to those who are responsible for them, "the punishment would fit the crime" and a kind of retributive justice would result, of which no one would care to complain. But since this discrimination cannot be made the innocent must continue to suffer from the wrongdoing of the guilty until the presumption of ignorance is overcome by the humility of wisdom.

One of the most important and useful of the drugless remedies mentioned, and also one which has been most neglected by the profession is massage.

Why so valuable a remedy—one so relevant, to, and fundamentally curative in, diseased states of the most serious as well as of the most diversified character, when applied with the same medical knowledge and skill which dictates the appropriate prescription or directs the keen edge of the knife—why such a remedy should fail to be appreciated at its true, practical worth, and, when unmistakably indicated, not more frequently administered, is most difficult to comprehend.

Many reasons have been suggested, but, to my mind, there is only one of sufficient importance to deserve serious consideration.

It cannot be due to the physical effort the giving of massage requires, because the obstetrician, the surgeon, and even the general practitioner frequently undergo, without protest, much more physical exertion than is called for in the regular and orderly administration of the process of massage. Besides, the physician competent to give massage can have as much of it as pleases him done under his personal supervision by assistants thoroughly trained by himself.

Neither can it be because physicians consider that the personal application of massage tends, in any way, to lessen professional dignity, for they are, notoriously, ever ready to afford relief to the suffering by any legitimate means, at whatever personal inconvenience or sacrifice to themselves, and, in the line of duty, cheerfully perform many services of a decidedly menial character.

Nor is it for lack of proper remuneration, for the value of a physician's services is more or less arbitrary, being determined largely by his reputation for medical knowledge and skill, and patients are as willing to pay for the doctor's visit and an additional amount for massage as for the visit and a written prescription with an accompanying apothecary's fee.

If, then, the reasons mentioned fail to account for the infrequent employment of massage in the many cases where it would prove to be a superior and all-sufficient remedy, it must be because its remedial scope and power is too little understood.

The value of a remedy is determined by its relevancy to the diseased conditions to which it is applied, its adequacy, its range of action, its availability, and the promptness, certainty and uniformity of its effects. Judged by this standard how completely does massage stand the test? To what position is it entitled in the scale of remedial merit? Let us see.

The attribute of relevancy exists in several forms and is not possessed by all remedies in an equal degree. Mere palliation is one form—a form common to many remedies of different classes and one which, in the estimation of the patient, is of great value. Unfortunately, as the observing physician well knows, there is no necessary relation between palliation and cure. A remedy may afford relief from pain and bring comfort, and even hope, to the suffering patient, without contributing, in the slightest degree, either to the removal of the disease or the causes which induced it. In fact, the use of the most powerful remedies of this class only tends, in many cases, to aggravate the disease and prolong its existence. Palliatives, whose action is neither accompanied nor followed by some undesirable or injurious effect, are very rare, and are highly prized by physicians of every school of practice. It is worthy of note that remedies which possess this characteristic are only those which possess the most hygienic qualities.

Another form of relevancy, and one of greater value than palliation, is the curative power displayed by a remedy—its ability to overcome or remove disease.

This power, in a greater or less degree of efficiency, is an inherent property of remedies of every class and kind. Indeed, it would be difficult to mention any substance, in either the mineral, vegetable or animal kingdom which has not, at some time, been used as a remedy with seeming success. The adjective is used advisedly, for the physician of much thought and experience has discovered that a cure cannot always be attributed to the remedy employed. He has learned that there are negative as well as positive remedies; that a cure often results as much because certain things are not done as for the reason that certain other things are done. And this is not the only therapeutic anomaly that confronts him. He finds that not only is the same remedy employed to cure diseases of a widely differing, and, even, of an entirely opposite character, but that the same disease is cured by any one of a list of diverse remedies ranging in form and action all the way from the extreme of mental suggestion, on the one hand, to a dose of calomel on the other.

He learns, further, that the most popular and effective remedies used for a given disease by one generation are discarded or forgotten by the next, and by inference, if not by direct statement, he finds ample and logical grounds for the belief that in the not so far distant past, patients frequently recovered *in spite of*, instead of *because of* the medical treatment they received.

But through all this woof of contradiction and uncertainty there runs the warp of true, therapeutic consistency which is that, although the remedies directed against any designated form of disease may vary greatly, from one decade to another, they are always selected on account of their power to remove what, at the time, is believed to be the cause of the malady in question. In shorter phrase, our theories control our practice.

This is eminently proper and affords the only practical method of procedure. It is in the theoretical department of therapeutics that faulty and unsuccessful methods of treatment have their origin, and it is to the same department that we must look for all improvements in remedial methods. A third form of remedial relevancy is that of prevention. Although from every point of view, except that of the invalid, prevention of disease is more important than its cure. The number of remedies which are truly prophylactic is comparatively small, and, for obvious reasons, are seldom found outside of the list comprising those of a purely hygienic character.

Very few remedies enjoy the distinction of possessing all three grades or degrees of relevancy. Of drugs, it may be said that those which, under proper conditions display the greatest curative activity are rarely either distinctively palliative or reliably prophylactic. Electricity is, in a large measure, both palliative and curative, but in prophylactic power it is lamentably deficient.

All hygienic agencies, however, possess every form of remedial relevancy—they palliate, they cure and they prevent disease. For this reason they are the most desirable of all medical resources. The success of modern methods of treatment is due almost entirely to their more frequent and more scientific use and yet, although they antedate all other remedies, having been instinctively used, in some practical, though at first, perhaps, crude way, since man's advent upon the earth, we have hardly begun to appreciate their worth, much less to use them in the many ways in which they are preeminently and often indispensably helpful.

We know how to use them to relieve pain, to lessen fever, and to control the intensity and duration of many acute forms of illness; we have learned their power to control, stamp out, and even prevent the ravages of the most virulent contagions and epidemics, but their full value will not be appreciated until scientific investigation shall have confirmed the simple but important fact that, as disease, in any of its possible forms is, in its last analysis, the result of faulty nutrition, those natural agencies by which alone nutrition is controlled and maintained, afford the most direct, powerful and reliable means of cure.

The most prominent hygienic agencies—those most closely identified with and responsible for our physical welfare—are water, air, food and exercise. In their distinctively remedial character they take the form of baths, oxygen, diet and massage. Of these, in point of merit, massage easily stands at the head of the list, because it possesses every qualification of an ideal remedy. In action its promptness is as rapid as the movements of the circulation, which it equalizes and promotes; its certainty is as positive as the mechanical and chemical activities, which it hastens and intensifies, and its uniformity of action is as reliable as the physiological laws of organic function and activity which it favors and assists.

Its availability is well nigh universal. Wherever there is a pair of willing hands it can be immediately and advantageously employed, and in cases of emergency the patient can, in many instances, temporarily even use it on himself.

Its range of action is limited, with few exceptions, to chronic forms of disease, but it meets the specific requirements of this large and exacting field of practice in the most satisfactory manner.

Massage prior to the invention of machines for administering its various processes, lacked the very essential attribute of adequacy. There were many diseased states and conditions for which massage, theoretically, is the closely-indicated and all-sufficient remedy, but which, practically, failed to be cured simply because the human hand is not able to continue the necessary processes long enough to produce the expected result.

Mechanical massage has overcome this serious defect. The pressure motions it imparts are derived from an unlimited source of power, as steam or electricity, and may be continued for any desired length of time.

Another characterisitc feature of mechanical massage, one which adds greatly to the adequacy of manual processes, is its ability to supply motion, in a most agreeable manner, at rates much above and also below those possible to the hand, thereby producing chemical and nutritive changes of a remedial character otherwise unattainable.

In these important respects have mechanical processes so increased the scope and efficacy of massage that it is, now, fully adequate to meet remedial demands for pressure motions in any form and to any extent.

Massage is excelled by no other remedy in relevancy. It not only possesses this necessary factor in all three of its practical forms, in a high degree, but by its dominating influence over the fundamental processes of nutrition and vitality it is peculiarly adapted to prevent, palliate and cure a greater number and variety of diseases than any other single remedy.

This ability, on the part of massage, to reach, with its modifying influence, every vital organ and function of the body is due to two causes. First that by its anatomical construction the human body is as perfectly adapted to receive and distribute pressure motions and vibrations, from without, as if it had been created solely for this purpose. The fleshy masses which constitute the greater portion of it are soft, semi-fluid, spongy and elastic, and within certain limits very movable. In addition to these qualities so favorable to massage, they contain blood-vessels and nerves which extend to and penetrate interior organs and convey to them the physical stimulus they require for perfect functional work.

The second reason for the remedial efficiency of massage is the fact that, practically, the same physiological efforts are produced when the muscles are acted upon as when they act themselves.

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EXTERNAL EXERCISE *VERSUS* INTERNAL EXERCISE.

UNDER the above title, an editorial in our new contemporary, *Vim,* treats an important factor of disease-prevention and health-restoration in such a forceful and convincing manner that we copy it in full for the benefit of our readers:

Physical exercise ignorantly applied is dangerous. Even the foremost physical directors in America, those in charge of our leading colleges, have young, robust men break down under their very eyes. How often do we hear of an athlete being overtrained or becoming "stale." If strong young men under the care of experts fall into this dangerous condition, how many of the thousands of weaklings that are endeavoring to develop their health and strength by means of exercise will over-train and ruin their health?

The usual cry is, "You do not exercise enough." This theory is wrong. Even those who are considered as leading a sedentary life tax their external muscular system sufficiently to remain in perfect health and retain the highest degree of muscular strength, provided they observe all other important rules of hygiene.

The great demand upon my time compels me to lead what is usually considered a very sedentary life. For four years I have exercised merely enough to retain my agility, abstaining entirely from all vigorous exercise. Notwithstanding this fact, a few days ago I performed a grip-testing feat that broke every record of its kind. The great increase in my strength over what it was when I was an active athlete, is due to one thing alone: my great improvement in general health.

The cause underlying the danger of over-exercise can be easily solved. Exercise necessitates a great expenditure of nervous force. Large quantities of oxygen are consumed. The vital organs must be heavily taxed in order to supply nourishment to the muscles and nervous system as fast as it is needed. Unless the internal organism is powerful enough to supply the demand without great effort, one or more of the organs must be overtaxed. The result is internal weakness, which usually leads to colds, then pneumonia or consumption.

The heart, lungs, stomach, liver, intestines, etc., are not in the arms, legs and external layers of muscles. The body requires very little external exercise to retain its normal condition, but it does require internal exercise. Nature intended that the internal organs should be exercised, massaged and kept in motion, and she intended that the powerful breathing muscles should give them this internal exercise.

Breathing performs a double duty. First, to purify and revitalize the blood; the other, to exercise the internal body. Every breath means a force exerted by the internal muscular system equal to raising a weight of from one hundred and seventy to two hundred pounds. Each organ receives its share of benefit from this great muscular action. Each organ is kneaded and massaged. Rich, pure blood is forced into every cell. Internal exercise causes nine-tenths of the oxygen you breathe to nourish the blood and vital organs, instead of nine-tenths of it being wasted in nourishing external muscles that play an important role in the preservation of health.

Internal exercise is one of the greatest needs of the body. If the blood could be oxygenated artificially and the breathing suspended, death would soon follow as the result of internal inactivity.

It is for these reasons that breathing is the supreme act of the body. But proper breathing must be harmoniously combined with relaxation, proper mental attitude, sunshine, pure air, diet, etc., before real regeneration can be hoped for.

Diet has, by many, been given a too important place in hygiene. If your stomach cannot digest food that can be digested by any healthy stomach, then your stomach is weak. The trouble does not lie in the food. Abstaining from certain foods and eating only special preparations does not strike at the foundation of the trouble; at best it can only offer temporary relief, never a cure. Or, in other words, if you have a boiler that cannot raise the required amount of steam with regular furnace coal, then your boiler is poor. The trouble does not lie with the coal. Changing to the finest selected coal, most readily burned, may produce the proper steam pressure, but it does not strike at the seat of the trouble.

Strike at the foundation of your weakness. In nine cases out of ten it will be found that you are a shallow breather. You suffer from oxygen starvation. You are a chest breather instead of a diaphragmatic breather. You do not exercise your internal body. Unless you have the vitality and strength of an ox and a nervous system that is food proof, do not attempt to exercise yourself healthy.

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SOME OF PROF. LORENZ' PRINCIPLES IN ORTHOPEDIC SURGERY.

At the reception tendered Prof. Lorenz by the Orthopedic Section of the N. Y. Academy of Medicine, he said, in part:

As to my methods, I can recommend them as both safe and successful to the patient. In saying this, I touch upon my leading principle, that is, curing my patients without danger of loss of life. Luckily deformities seldom offer what we call, indicatio vitalis, therefore, when we operate on deformities we should never arouse even the possibility of putting the life of our patient in danger. Following this principle, I generally prefer bloodless operations to the bloody ones. Usually the results are the same, but in many cases those of the bloodless ones are even better. As long as the bones are elastic enough, I prefer osteoclasis to osteotomy; this latter operation is exclusively reserved for adolescents and adults. In hip deformities I prefer bloodless corrections to osteotomy, as long as even the slightest motility of the joint can be stated; only in cases of complete bony ankylosis do I operate with the chisel.

All cases of knee contracture I correct by the intra-articular modelling redressment as long as even the slightest motility can be found. Only cases of complete bony ankylosis of the knee joint, which are rarer than is usually believed, are reserved for bloody operation.

In all deformities of the foot, both paralytic and congenital, I rely exclusively upon my modelling redressment of the foot, and from a thousand-fold experience I can assure you that the results are generally beyond expectation. In my opinion the wedge-shaped excision of the bones of the foot newly recommended by the French, is nothing more than a deplorable mutilation of the foot. The results of the modelling redressment of club foot have been preferred by many others, and I am happy to say that at least in Germany, this method is predominant.

On the whole, I dare say that I prefer bloodless operations to the bloody ones, as long as any possibility exists of securing the result in this way. According to this principle I cannot sympathize with the total extirpation of the sterno-cleido-mastoideus in wryneck. After my experiences the subcutaneous myotomy of this muscle, in connection with the modelling redressment of the cervical skoliosis is perfectly sufficient to cure the *caput obstipum* thoroughly and without leaving a scar. In this realm I go ever further, as the congenital *caput obstipum* in children can be cured even without tenotomy, only by myorrhexis of the sterno-cleido-mastoid muscle, and the results obtained by this method are the most perfect ones from a cosmetical standpoint. The ruptured muscle regains its normal length as well as its normal elasticity to such a degree as to allow the head to move freely to the opposite side. Besides this, the ruptured muscle retains a normal prominence with its partner, restoring the normal configuration of the neck, in this way avoiding the known applanation of the operated side which usually occurs after open or subcutaneous myotomy.

Following this principle you will share many advantages with your patient. The latter readily consents to be operated upon, as he runs no risk of life, and as for yourself, you will feel quite easy about him.

Another principle which I have always followed, is the so-called central correction of deformities, which means that every deformity should be corrected in the vertex of its angle. If you should prefer to correct a deformity in one of the sides of the angle, even near the vertex, the deformity itself would remain, and instead of a correction you would have only a compensation for the deformity. This compensation implies some shortening of the side of the angle, that means of the leg, which shortening should be avoided under all circumstances. This principle is very important with regard to the contractures of the hip joint. It is obvious that subtrochanteric osteotomy contradicts the above mentioned principle. By correcting or compensating the deformity you shorten the leg. Agreeing with the principle of central correction, I always do central, that is pelvotrochanteric osteotomy. Having performed this operation, correction is very easy without causing any further shortening of the leg. I object even to oblique subtrochanteric osteotomy, although it avoids shortening by a complicated and difficult extension after treatment by which the patient is confined for some weeks to his bed instead of being able to get up a few days after the operation.

Following the principle of central correction you will also object to supracondylic osteotomy or osteoclasis in correcting the contractures of the knee joint. In preferring central, that is, intra-articular correction, you will avoid shortening the limb. In correcting genu valgum, the principle of central, that is to say, intra-articular correction cannot be thoroughly attended to because—except in cases of young children—a loose knee is to be feared, and besides the treatment takes too much time. In genu valgum, supracondyloid osteotomy is still the predominant method, because of its general reliability, but beyond doubt epiphysiolysis on the lower end of the femur allows better correction of the deformity, being a more central method than the supracondylic osteotomy. Unfortunately, the method of epiphysiolysis is available only in children from 5 to 16 years.

Another important principle of modern orthopedic surgery is that of absolutely saving the bones by dividing the soft parts as far as circumstances may demand it. This conservatism toward the bones and this radicalism against the soft parts (just the inversion of a principle of former times) condemns all cuneiform osteotomies and resections en bloc, of the bones, and makes it a rule to correct deformities by simple linear osteotomy, sacrificing the soft parts as far as may be desirable. Indeed, it is very easy to correct every hip deformity of whatever degree by similar linear (pelvitrochanteric) or central osteotomy, after having thoroughly divided the adductors and the subspinal soft parts. It is of no importance whether you divide them in open wound or subcutaneously, you must only divide them thoroughly. The wedge-shaped excisions of bones in correcting knee contractures are likewise to be avoided, or at least to be restrained to a minimum by regardless radicalism against the soft parts in the fossa poplitea. As to the excisions of bones in the treatment of club foot, I have mentioned above, I abhor them.

The principle to correct deformities only by simple linear osteotomy, is even available in those most difficult cases of bowlegs with anterior convexity of the bones. In such cases I apply one or two linear osteotomies to the center of the deformity, then I add Achillotenotomy and sharp screw extension above the ankles until correction is allowed.

Another principle of common interest refers to the treatment of tubercular diseases of the joints in children, and to the treatment of deformed paralytic limbs. I must avoid discussing the question whether operative or conservative treatment should be carried on in these cases. My standpoint on this question is rather one of expectancy. But I do not hesitate to declare that up to now I have never made a resection of a tubercular joint in children, and that the results of conservative treatment seem to me far better than those of operative treatment. Nevertheless, I am far from denying the necessity of operating in some special cases, particularly in common hospital practice. However, the principle of which I will speak refers to the question whether or not mechanical treatment should be carried on in a way to exclude all functional work of the limb during the whole treatment. Observation of nature let alone seems to me to give the answer to this question. If we contemplate a case of hip disease never interfered with by any treatment at all, we learn in many cases that nature unhelped by our mechanical means, needs no more time to cure the disease than we do. After some two or three years all may be over. During this time the sick child may have been confined to bed by great pains in the hip joint some months only. During the rest of the time they walk about without the help of crutches as well as they can, using the limb according to the actual state of sensitiveness. After all the disease heals without any suppuration even, and finally we see these children come to us to get rid of their deformity. We find a contractured limb, but fit for function even under the unfavorable mechanical conditions of the deformity. We find the bones solid and the soft parts not so much wasted as we expected; and last, but not least, we find that the growth of the limb has not been much interfered with by the disease. These cases are the best subjects for operative treatment, because the good state of the legs very soon enables them to profit by the correction of the deformity. If we compare one of these cases of natural healing to the results of our mechanical treatment, which may have begun at the first sign of the disease, we will find that we have scarcely shortened the course of the disease. But surely we shall find the leg in a wasted condition, the muscles being slack, the bones lacking solidity, being quite unable to support the weight of the body, although pains have long since disappeared. Probably we shall find besides that the growth of the leg has been much interfered with by the disease. There can be no doubt that this deplorable condition of the limb is due to the fact that, both by suspension and fixation by our mechanical means, the leg has been totally excluded for many years from every function of movement and weight carrying. From this consideration is derived my principle to exclude the diseased limb no longer from a measured function, if severe pains will not forbid it. I never allow any movement of the diseased joint, but I suspend the weight only as long as the pains demand it, always taking proper care to procure slight abduction of the leg. As soon as the pains allow it, I begin to attend to the muscles by massage. Of the movements, only active and passive abductions are made in the later after-treatment to prevent the tendency to abduction.

My final aim is to procure a solid ankylosis of the hip joint, combined with good position of the leg, experience having taught me that great mobility and bad function with lack of any endurance are common allies. With greatest enthusiasm I would welcome a method which would procure a true bony ankylosis of the diseased hip joint, bony ankylosis of the hip and good position of the leg being the condition for the best result, both from a cosmetical and functional point of view.

As you may have seen by what I have said, I make little of the permanent extension. I consider extension only a matter of fixation, direct and indirect fixation together, naturally giving a greater degree of surety. I have said that every articulation attacked by chronic diseases should not be prevented from function any longer than is absolutely necessary. In saying so I turn against the method of treatment generally used in Germany, which makes the patients wear their pressure relieving and fixing apparatus so long that they become slaves to them. I emphasize using this same principle in the treatment of paralytic deformities. I am convinced we render no great service to our patients by making them wholly dependent upon their apparatus; the limbs atrophy by exaggerated use of apparatus to such a degree that they become useless for any function. It is my practice to correct thoroughly the paralytic deformities by modelling redressment, in case of need combining the transplantations of the tendons, and to fortify the rest of the muscles by massage and exercises in order to secure the obtained correction. For the rest, the patients must be accustomed to make use of their legs as much as possible without apparatus, or by assistance of the simplest one. Generally a flannel bandage or laced boot will give the necessary support. In any case I take care to secure the corrected position during the night by means of a simple apparatus. I think that enclosing the leg in a steel support is to be avoided, as by so doing the leg will be excluded from any function. On the contrary, I try to make the leg independent of mechanical appliances as far as possible. Only in the treatment of total paralysis, which fortunately seldom occurs, the permanent use of mechanical support is indispensable. In the treatment of skoliosis I am wholly against the exclusive application of mechanical supports, especially against those which are worn day and night. I restrict the use of corsets to special cases which evidently want a support. Besides I take special care of the muscles of the back by exercising them and endorse the necessity of forcible antiskoliotic gymnastics.—*Medical Review of Reviews.*

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MOST WOMEN MISSHAPEN.

A PROMINENT American physician is responsible for the startling statement that every woman has either crooked arms or crooked legs. Inquiry among the different professors of gymnastics has brought forth much the same opinion. Women are knock-kneed, bow-legged, too lean, too fat, or only partially developed, and a straight arm is very rare. Worse than all, they attribute these deformities to our manner of dressing. Tight sleeves, tight waists and tight corsets are to be blamed. A man rarely has deformed arms, because his clothing is made to allow him an opportunity to reach anywhere, and fashion does not forbid him to swing his arms when he takes his daily walk. Besides being tight, a woman's sleeves are put into a waist in such a manner as to prevent her from lifting her arms to any height. The fashionable sleeve of the past twenty years has been crooked, and woman's arms have grown as crooked as the sleeve. Bow-legs and knock-knees often begin in childhood, but they are finished by the high heels and narrow-pointed toes which distinguish the everyday footwear of womankind.

Our own deformities may be remedied by a thorough course of physical exercises with dumb-bells and Indian clubs, or any one of the excellent exercises now on the market. Our children can be saved from deformity by care and attention. The mother is careless often—allows her baby to stand upon tender little legs whose cartilages are too soft to bear the weight of the body, and so bend one way or the other. If outward, the baby will have bow-legs, and if in the other direction knock-knees will be the result. The legs should be allowed to gain strength to bear the weight of the body. Massage for both arms and legs of a baby should accompany the daily bath, and if there is a slight indication towards deformity the limbs should be bandaged.

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"A KISS is a peculiar proposition. Of no use to one, yet absolute bliss to two. The small boy gets it for nothing, the young man has to steal it, and the old man has to buy it. The baby's right, the lover's privilege, the hypocrite's mask. To a young girl, faith, to a married woman, hope, and to an old maid, charity."—*Stolen.*

THE INFLUENCE OF THE WEATHER ON OUR HEALTH AND GENERAL CHARACTER.

We have before alluded to the fact that the materialistic—or, we might say, ultra-scientific—tendency which prevailed in medicine during the second half, and almost to the end, of the last century had the effect of causing us to neglect minor details and things of a more subtle character. Hippocrates, that wonderful genius whom no other physician has ever approached in the power of observation, was fully aware of the influence of the weather on our body and temperament; the scientific physician was rather apt to smile when the subject of the weather, as affecting the patient's condition, was broached. Keen observers have, however, noticed that there is something more in the subject of weather influence than mere grandmother's tales and ancient superstition. It has been noticed that a person will feel languid and incapable of any physical and mental effort one day, and buoyant and vigorous the very next day, without any apparent cause and reason. It has been noticed that patients under the identical treatment and environment will make the most remarkable ups and downs —again without any explainable cause or reason. Further, it has been noticed that, without any apparent cause, without any discoverable change in the circulatory, respiratory, digestive or any other function, without any change in the financial, personal or other circumstances, a person will one day feel happy, expansive, good-natured, and will view everything through rosy spectacles. Another day he will feel depressed, melancholy, suspicious, will grumble at everything and everybody, and will be ready to say amen to all the dicta of Schopenhauer.

To say that these things just happen, that they are a mere matter of chance, did not satisfy the man of an inquiring turn of mind, the man who knows that there is no effect without a cause. And in looking for causes it has been found that the weather plays a most important part. In speaking of the weather three factors are to be taken into consideration; the temperature, the humidity, and the barometric pressure. Hippocrates considered the direction of the winds as a very important factor. He taught that the south wind produces dullness of hearing and sight, caused headache and general malaise, while the north wind affected the throat and chest. We have no scientific proof of the truth of this observation; still we are not ready to pooh-pooh it. There may be some element of truth in it. The influence of changes in temperature and humidity are pretty generally recognized, but we think that the most important factor is the barometric pressure, and this is not generally recognized. A consideration of the subject will, however, convince everybody that a change in barometric pressure must exert a great influence on the human organism. At ordinary barometric conditions the human body supports a weight of 15 tons. A fall in the pressure may reduce the weight to the extent of a whole ton, while a rise in the barometric pressure may impose upon the body the additional weight of a whole ton! Now, think of the effect this must produce upon the normal physiological processes, and of the effect that these must in their turn exert upon our feelings and character. We do not see the weight, but it is nevertheless just as real as if it were saddled on a person's back, and we opine that in the near future the relationship between the weather and a person's or a nation's general character will be found to be a much closer one than has heretofore been suspected.—*Merck's Archives.*

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INSANITARY NEATNESS.

This seems paradoxical, but it is none the less true that the neatest person is not necessarily the cleanest.

There are some people who shut out the sun and fresh air because the one fades the carpet and the other wafts in a little dust. Their house in consequence cannot be in a sweet, healthy condition, and the inmates must naturally suffer in one form or another.

There is also a kind of tidiness or neatness which, I hope, is fast dying out, and this is the methodical habit of folding up each article of wearing apparel as it is taken off at night. There are few things more unhealthy: clothing which has been worn for many hours requires a thorough airing before being put on again. The best way to do this is to hang the things over the backs of chairs, or to spread them out in some way. Bodices and coats should, as far as possible, have the sleeves turned inside out.

No woman appreciates a neat, tidy bedroom more than I do, but it must be in a sanitary condition at the same time. No dirty linen should be hidden either under the bed or in a drawer. The bed itself will afford greater rest if it has been thoroughly aired by stripping every article off it one by one, and leaving them for quite an hour, if not longer, before the bed is made again.

Did it ever strike you that your wardrobe requires emptying of its contents sometimes. You are proud of the extreme neatness of your room, and your friends, probably, compliment you upon your good management; but your clothing would be all the better for being taken out of its hiding-place from time to time. Choose a bright, breezy day, and, if you have a garden, put out your clothes-line and hang all your coats, skirts, dresses, etc., on it for some hours. Put them all out—the old and shabby as well as your best "Sunday gown." Then, after dusting the inside of your wardrobe, take a flannel wrung out of hot soapy water and go over it again. Leave the door open until thoroughly dry, when your garments may be put back again. Those who have no garden can spread the clothing out in a sunny window.

Household linen, blankets, etc., often acquire a musty odor after being kept in fold and shut up for weeks. These may be treated in the same way as your clothing, and you will be delighted with the sweet fragrance which the sun and wind have imparted to them.—*Selected.*

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THE NEW HEALTH FOOD LANGUAGE.

In enriching the vocabulary of the common language by such mellifluous terms as grabachunka, takabita, swipaboxa, etc., there is no doubt that the health food manufacturers of Battle Creek have greatly simplified the problems of every-day life by doing away with many unnecessary words. This will perhaps be more apparent in a few years, but the tendency is unmistakable even now. In those days people will not be annoyed by the necessity of making selections from different styles and makes of the same articles. They will condense their wants into a single euphonious word and the dealer will have merely to hand the package down from the shelves, for there will be some well-advertised article bearing exactly this name whether the purchaser has ever heard of it or not—and being well advertised, it will of course be the best of its kind. For example:

A man comes into a drug store, visibly distressed. The druggist anxiously inquires "Helpaheada?" as he reaches for that article. The customer replies, "No. Gottacoffa," and in a few minutes departs with the required life-saver. A few minutes later the same man is seen in a hat store. Laying down three dollars he speaks the one word, "Needaroofa," is fitted and resumes his journey to the office, stopping in for a moment at a thirst emporium, where the bartender mixes a wetmynecka to his great satisfaction. He looks over his morning mail hurriedly, then dictates his brief replies into the new rytalina machine, which a few moments later shoots the letters back to his desk with a squeaky "signaquicka."

His wife meanwhile has been busy with the marconiphone ordering her supplies for dinner and such words as portersteakine, lofabreada, betternbutter, digestacabbage, fakocoffee, pieceapya go whizzing through the atmosphere, and when the lord and master returns for his noonday refreshment his wife invites him to takeseata. Noticing the chill of the room he comments thereon to which his wife replies, "Fireouta, coalagona." He hastily calls up the coal dealer, who informs him "Strykstilona"—and as here he reverts to linguistic habits acquired under similar circumstances in 1902, we must refuse to follow him further. But this prophetic sketch will at least suggest what we may expect at no greatly distant date.

New Idea.

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HEAT IN THE OVEN.

"Bakers have a curious way of telling just what the temperature of the oven is," said a downtown baker, who has been in the business for more than a quarter of a century, and they can tell, too, with almost marvelous accuracy. You take a man who is an expert in the business, and he can tell what the temperature of the oven is by simply touching the handle of the oven door. In nine cases out of ten he will not miss it to the fraction of a degree. Bakers have other ways, of course, of testing the heat of the oven. For instance, when baking bread they sometimes throw a piece of white paper into the oven, and if it turns brown the oven is at the proper temperature; or, when baking other things they will throw a little corn-meal flour into the oven in order to test the heat. But the baker's fingers are the best gauge, and when you come to think of the different temperatures required in baking different things, it is no small achievement to even approximate the heat of the oven by touching the handle of the oven door.

"Bakers figure that during the rising time of a loaf of bread, after it has been placed in the oven, it ought to be in a temperature of 75 degrees Fahrenheit. During the baking process, in order to cook the starch, expand the carbonic acid gas, air and steam, and drive off the alcohol, the inside of the loaf must register at least 220 degrees. In baking rolls, buns, scones, tea biscuits, drop cakes, fancy cakes, New-York cakes, muffins, puff cakes and things of that sort, the oven must show a heat of 450 degrees or higher. When the oven is at 400 degrees it is fit for cream puffs, sugar cakes, queen cakes, rock cakes, jumbles, lady fingers, rough and ready and jelly rolls. At 350 degrees wine cakes, cup cakes, ginger nuts and snaps, pies, ginger bread, spice cakes, such as raisin, currant, citron, pound, bride and so on, may be baked. It requires a still lower temperature to bake wedding cakes, kisses, anise drops and things in this class. But whatever temperature the old baker wants, he can tell when he has it by simply touching the handle of the oven door." —*N. O. Times-Democrat.*

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POTATOES.

It is now some 335 years since potatoes were known in Europe; they were imported into Ireland in the reign of Queen Elizabeth. The importer was John Hawkins, who brought them from Santa Fé in Spanish America. They were planted for the first time in Ireland, it is said, by no less a man than Sir Walter Raleigh, who had an estate there; but the natural history of the potato was so little understood at that time that Sir Walter resolved to renounce the expectation he had formed of bringing this exotic to perfection in Ireland. When in due time, after he had planted the first potatoes, the stalks grew up, and he perceived upon the stem a green apple, he thought that was the fruit, which he had no idea was concealed under the earth; he caused some of these apples to be boiled, but finding them nauseous to the taste he concluded that he had lost his labor, and for some time thought no more of potatoes. However, having some time after given directions that the ground should be dug up or plowed, to his very great surprise he found a plentiful crop of fruit, which proved most grateful to the taste. They soon got into general use, and became the principal food of the Irish peasantry. From Ireland they spread into England, where it has generally and erroneously been believed that potatoes were natives of Ireland.—*Health.*

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HENRY CLAY AS AN ACTOR.

A well-known traveler of Chicago tells an interesting story in the Louisville *Courier-Journal* about Henry Clay, the great Kentucky statesman, then a well-known lawyer.

"A man was once being tried for murder, and his case looked hopeless indeed. He had, without any seeming provocation, murdered one of his neighbors in cold blood. Not a lawyer in the county would touch the case. It looked bad enough to ruin the reputation of any barrister.

"The man, as a last extremity, appealed to Mr. Clay to take the case for him. Every one thought that Clay would certainly refuse. But when the celebrated lawyer looked into the matter his fighting blood was roused, and, to the great surprise of all, he accepted.

"Then came a trial the like of which I have never seen. Clay slowly carried on the case, and it looked more and more hopeless. The only ground of defense the prisoner had was that the murdered man had looked at him with such a fierce, murderous look that out of self-defense he had struck first. A ripple passed through the jury at this evidence.

"The time came for Clay to make his defense. It was settled in the minds of the spectators that the man was guilty of murder in the first degree. Clay calmly proceeded, laid all the proofs before them in his masterly way. Then, just as he was about to conclude, he played his last master card.

" 'Gentlemen of the jury,' he said, assuming the fiercest, blackest look and carrying the most undying hatred in it that I have ever seen, 'gentlemen, if a man should look at you like this, what would you do?'

"That was all he said, but that was enough. The jury was startled, and some even quailed in their seats. The judge moved uneasily on his bench. After fifteen minutes the jury filed slowly back with a 'Not guilty, your honor.' The victory was complete.

"When Clay was congratulated on his easy victory he said:

" 'It was not so easy as you think. I spent days and days in my room before the mirror practising that look. It took more hard work to give that look than to investigate the most obtuse case.' "

⁂

WANTED, A GIRL.

A girl who will be as agreeable to her own brothers and sisters as she is to the brothers and sisters of other girls.

A girl who helps to make home a pleasant place for all.

A girl who can, if need be, wash dishes, make beds, and do necessarily disagreeable things, with peace in her heart and a song on her lips.

A girl who can think, walk, swim, row, work with brain and brawn—not a hothouse plant.

A girl who is not afraid of a bath tub nor a wash basin.

A girl who combs and brushes her hair, and does not forget fingernails or teeth.

A girl with a place for all of her belongings, and who can keep each in its place.

A girl who hates dirt—who hates it bad enough to get rid of it.

A girl who understands how to run a

sewing machine, and how to wash, starch and iron her own dresses.

A girl who can say "no" and not mean "yes."

A girl who does not know more in one minute than her mother has learned in all the years of her life.

A girl whose only lovers are father, mother, brothers and sisters, until she is old enough to know and to understand the depths of life's master passion—love.

Wanted, such a girl by mothers, fathers, brothers, sisters, lovers, everybody.

LEMON JUICE FOR RHEUMATISM.

THE idea of treating rheumatism with lemon juice appears to have had its rise in Germany. The method consists in swallowing the juice of one lemon on the first day, of two on the second day, and so on progressive up to 25 lemons. When the limit is reached, the number of lemons is progressively diminished.

M. Desplats, of Lille, has recently adopted this treatment with some of his patients who suffer from articular rheumatism. In one case the patient was able to drop the treatment at three lemons. In another, he succeeded in effecting a cure at 25 lemons, so complete and so persistent that at the end of 10 months the patient had not once had an attack, whereas previously he had suffered periodically every month. The third case was one of ankylosis, so bad that the patient could not dress himself without help. To-day he has almost entirely recovered the use of his limbs, and is free from pain.

M. Desplats has also tried this mode of treatment on a patient suffering from attacks of rheumatism accompanied by disease of the heart, for which all means adopted had proved merely palliative. After a few days the patient experienced a manifest relief of the articular symptoms, but he also experienced pain in the upper right side of the thorax, the pain being extremely great and tenacious. In another case there was the same improvement, though in a less marked degree, and the pain in the thorax made its appearance at the end of the treatment. A third case gave the same results. Another patient suffering from rheumatism that had proved refractory to salicylate and to thyroid, when treated with citric acid in doses of from two to ten grams daily, improved considerably.

A RIVAL OF CHAMPAGNE.

THERE is fashion in wines as in everything else. The sherries and ports in which our forefathers delighted have long ago given place to clarets, and now clarets are losing their position in the public estimation in favor of sparkling wines like champagne. However, real champagne is about as rare as real cognac; and as the demand must be met, various imitations find their way into the market. Some find their origin in the juice of the grape, but there is little doubt that a large number are prepared from other vegetable juices. The owners of some vineyards in the Medoc country, recognizing that their claret has found a formidable rival in champagne, are now producing sparkling wines made by the same process as that followed by the champagne-growers, and we are told that "to the ordinary taste there is nothing but the label to distinguish sparkling Medoc from the best brands of champagne." The color of the grape presents no difficulty if the dark skins be removed before fermentation, and as a matter of fact the champagne grapes are as black as those grown in the Medoc country.

Notes and Queries.

Query 136. What is the scientific objection to the free use of common salt in the ordinary diet?
H. S. W., N. Y.

Answer.—Common salt, it need hardly be repeated, is a compound of hydrochloric acid with sodium. Hydrochloric acid is the most important constituent of the normal gastric secretions. Dietetic writers are apt to assume that this salt of sodium, Na Cl, is uniformly decomposed in the stomach and thereby liberates free hydrochloric acid, HCl. This assumption has long been accepted as authoritative, but modern and more careful observations and experiments prove that this decomposition is not by any means uniform or extensive, and it is disputed by some authorities of repute.

On the other hand, excessive use of salt, Na Cl, has an inhibitory influence on the normal secretion of HCl, and in this way retards gastric digestion.

In certain abnormal conditions the assumed conversion may rationally be charged—if it really occurs—with aggravating that distressing condition now so commonly met with and described as hyperchlorhydria.

Query 137. What are the symptoms of true neurasthenia, as distinguished from ordinary so-called "nervousness" and simulated neurasthenia belonging with hypochondriasis or some of the obscure neuroses? What is the general plan of treatment?
T. de M., La.

Answer.—Current authorities assert that *neurasthenia* as the name of a distinct disease is a misnomer, that it is not a disease proper, but a group of conditions, each of which must be recognized and analyzed in order to arrive at a diagnosis. One author describes it as "a persistent state of enfeeblement of nerve force, due to a nutritive enfeeblement of nervous elements."

Dr. Blois says "the objective symptoms of true neurasthenia are slight or none, and the subjective distinctly psychical." He sums them up as (1) headache, frontal or temporal, resembling the feeling of a heavy helmet on the head, and occurring only in the daytime; (2) vertigo, with a feeling that the head is empty, instead of ordinary dizziness, with feebleness of the lower limbs, disturbances of vision. Everything appears dull and gray, there are dots and moving figures before the eyes, and sometimes an oculist is consulted; (3) pains in the back of the neck and along the spine, especially in the sacral region. There is no anesthesia, no abolition of reflexes, and no urinary troubles. There is much lassitude, inability to read or fix the attention, insomnia, a very frequent and important symptom, poor appetite with gastrointestinal disturbances, slow digestion, heaviness of the stomach, gurgling, but rarely vomiting. The mental condition is sometimes elevated, but generally depressed. There is feebleness of will and disinclination to work, but the brain usually remains clear.

Finally, there is a definite cause to be found for the condition, which distinguishes it from the false neurasthenia. The hypochondriacs often cultivate the condition.

As to treatment these cases put to the test all the wits of the astutest practitioner.

To begin with, a change of mental, moral and physical environment is often the first essential. New scenes and surroundings, new companions, new thoughts and new aims, often work miracles in these cases. Moral and hygienic influences, a nicely adjusted system of physical culture exercises, open-air life, the subjection of the patient for 15 or 20 minutes to a permeating zone of electricity, such as is now made feasible by means of the high-tension, violet-ray and visible currents, a cold douche followed by vigorous friction and massage every other day, a thoroughly regulated and nutritious but non-irritating diet, with temporary resort to any indicated internal remedies—these constitute an outline, both safe and sensible.

Query 138. How is fat formed in the human body?

This question was asked of your editor or editors, for you then had a corps of Department editors—several years ago by me, but although you referred it to several of them, no satisfactory answer was ever published. I venture to ask it again, hoping that along with other advances in physiology, some new light has been forthcoming on this important question.

I do not ask it from mere idle curiosity, but because it is intimately associated with various pathologic conditions, for which satisfactory treatment might be devised, if their cause or causes were more perfectly understood. It is not necessary to mention these conditions in detail, obesity and fatty degenerations covering in a general way the entire list. W. A. B., New York.

Answer.—This is a question of much importance, as stated by our correspondent; and while we approach it with due deference, in view of his unsatisfactory experience with our predecessors, all of whom were "honorable men" and able scientists, we will venture to summarize what is now accepted as authoritative on the subject—as far as—well, "to the best of our knowledge and belief," for that is all the courts require!

The microscopic appearance of adipose tissue is that of minute cells or vesicles, consisting of a thin, transparent envelope or cell-membrane, each resembling a little bladder, filled with fat. At one side of this cell-wall is a nucleus, surrounded by a small quantity of protoplasm. A fat-cell is therefore essentially a bit of altered connective tissue or corpuscle which has become vacuolated, and it is in each of these vacuoles that fat is formed. The cell-wall of each globule is lined with a very thin layer of protoplasm. These cells are arranged in lobules, the cells in each lobule being held together by little threads of connective tissue. Each lobule is supplied with at least one artery and two veins, and each fat-cell is intimately surrounded with a plexus of capillaries. This makes it in reality a little gland, and the office of glands in any structure is to secrete. It does not require any serious stretch of imagination to set these little glands to secreting fat, from either proteid or albuminous foods, as a matter of regular everyday business.

It has also been shown, by indisputable data, that the fat of foods is to some extent directly appropriated and stored away by these same cells or miniature glands. The system undoubtedly avails itself of both these sources or processes in procuring and evolving its stock of fat.

If your query seeks for an explanation of the vital process of secretion we throw up the sponge. Not all the sages and ages of time have yet disclosed the secret of life, and if we could analyze the single and seemingly simple process of secretion we could just as easily explain all the other functions of living organisms, and therefore divulge the mystery of life itself.

Perhaps the scientist will one day be able to point out why one individual is more inclined to grow obese—"go to fat"—than another, but as yet even this question is often a puzzler.

In perhaps a majority of cases it is correct to assume that the subjects of obesity, ingest too much and eliminate too little; exercise too much at table and too little between meals; use poor judgment in selecting their diet, and exercise too little will-power in resisting the temptation to overindulgences. It is a very general observation that these afflicted individuals have a limited lung-capacity. Surplus fat is burned up by oxidation, and these people with undersized breathing apparatus fail to oxidize a sufficiency of the carbonaceous matter present in the system.

The radical remedy is always available, without recourse to unreliable and often dangerous drugs, namely, by developing lung capacity by every possible means—chest expanding movements, rowing, punching, reaching, deep breathing, the spirometer and every other available form of lung gymnastics, *and then using this increased capacity vigorously and persistently.* They need not starve, but they must oxidize more, the most efficient means being breathing, cold bathing and exercise.

A LATIN DIETETIC EPIGRAM

Si ventri bene, si lateri est, pedibusque tuis, nil
Divitiæ poterunt regales addere majus.
—*Horace.*

Translation by Theodore Martin:

"Let your digestion be but sound,
Your side unwrung by spasm or stitch,
Your food unconscious of a twitch,
And could you be more truly blest,
Though of the wealth of kings possessed?"

EPIGRAM ON WOMEN.

Oh, the neatness of their neatness when they're neat,
And the sweetness of their sweetness when they're sweet!
Oh, the gladness of their gladness when they're glad,
And the sadness of their sadness when they're sad!
But their neatness and their sweetness
And their gladness and their sadness
Are as nothing to their badness when they're bad.

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MULTITOXIN FOR TUBERCULOSIS.

By John Aulde, M.D.

SCIENTIFIC ANTAGONISM.

In considering the specific demands of the human organism in its efforts to resist invasion from the tubercle bacilli, we are necessarily compelled to take into account the biological aspect of the question. Not only must we possess a knowledge of the functions of the various organs in both health and disease, but we must endeavor to discover the occult properties of the cells and body fluids under like conditions. The study of immunity, therefore, requires a knowledge of physiology and pathology as well as chemistry, and recent investigations compel the student to take notice of chemotaxis—the property of cellular attraction and repulsion—to the end that we may learn the abnormal conditions which favor the multiplication of bacteria.

Thus, the clinician and farmer are similarly situated. When the latter finds his fields overgrown with sorrel, smartweed and plaintain, as a result of excessive acidity, he adopts measures for its correction, and as a result, the cultivated crops crowd out the noxious weeds. So, when bacteria invade the system, the thoughtful physician endeavors to restore the reactions to normal in the expectation that the growth of fungi or bacteria will be arrested; and as the tubercle bacillus is a fission fungus belonging to the order of schizomycetes, the deduction is warranted that we require a toxin for this particular fungus, a schizomytoxin. My impression is that this toxin should be produced through the function of the cellular activities as outlined in accounts of recent investigations.

To develop this factor and give it due prominence, I beg to quote from the "Huxley Lecture," by Professor William H. Welch, of Johns Hopkins University, as follows: "An important physiological capacity of the healthy organism . . . is the power to produce substances specifically antagonistic to all sorts of cellular products and derivatives." He also adds, "The mode of antagonism of the specific bodies formed in response to the reception within the organism of substances capable of inducing the necessary reaction varies with the nature of these latter substances. . . . One of the most important results of recent work is the separation of the specific anti-bodies into two groups, in one of which, represented by the antitoxins, the antagonists are single bodies; in the other, represented by the cytolysins, the antagonistic effect requires the co-operation of two bodies. Of these two bodies, the one which actually destroys the foreign cells, or induces other specific effect, is usually present in the cells or fluids of the organism, but it seems incapable of action without the intermediation of a body which is distinguished from it by greater resistance to heat, and which is produced by the immunizing reaction, although it may be normally present in smaller amount. The two elements composing a cytolysin exist quite independently of each other, so that one may be present without the other, or be artificially removed without affecting the other."

It should be noted here that both Ehrlich and Metchnikoff are substantially in agreement that the mechanism of immunity rests with the physiological function of assimilation of food by the cells, and this view is accepted by Professor Welch. It is also important to add a word in elucidation of the difference between the soluble toxin found in the bacilli of diphtheria and tetanus on the one hand and the toxin associated with tubercle bacillus on the other. The antitoxin of the first is a single substance, whereas the "anti-body" in tuberculosis is composed of an intermediary body and complement, although only the former is increased in the process of immunization. It is in consequence of this dual character, coupled with variable conditions not yet well understood, that the therapeutic application of bacteriolytic sera has been hindered. In other words, the employment of a serum which liquefies bacteria has not proven successful in the treatment of tuberculosis, typhoid fever, pneumonia, streptococcus, plague and dysentery, because the toxin in these affections is insufficient in itself to create through "reaction" a single anti-body which enacts the role of an antitoxin. In the case of tuberculosis, tuberculin was foredoomed, because it was employed under mistaken premises, *i. e.,* that the soluble toxin obtained from pure cultures would produce curative effects, no consideration being given to the injurious effects of the living bacilli.

All the foregoing information has accumulated as a result of experimental and clinical work with the various sera which have suggested themselves, but failure so far does not preclude the possibility of an artificial product which will take the place of the single anti-body known as antitoxin, or the duplex anti-body, composed of two distinct elements, the intermediary and complement. Acting upon this theory, I have made some observations upon the effects of alexin combined with formalin in the treatment of this disease, the following case being placed on record as an evidence of good faith and conscientious endeavor. For want of a better name I shall refer to the combination as *"multitoxin,"* since it is actually a union of two toxins, *i. e.,* substances which are toxic to bacteria or fungi. As a further evidence of its adaptability may be mentioned the fact that this combination in moderate dosage augments cell resistance, by increasing the stability of protoplasm. I assume that alexin acts as the intermediary body and that it finds its complement in the cell ferment of the protoplasm, formalin acting temporarily as a catalytic. At any rate the formalin content notably hastens physiological effect, so that in small doses there is a prompt response on the part of the cellular activities, this, in my opinion, being the true method of promoting cure and securing immunity.

Mrs. B., widow, aet. 47, gives the following history: Had pneumonia, left side, 1897, followed in autumn of the same year by hemorrhages, which have since continued at irregular intervals. Previous to the attack of pneumonia had a dry cough with little expectoration; since that period the mucus has been considerable, with more or less cardiac irritability and chest pain. Early in January patient took cold and suffered from congestion of the lungs; there was carditis with five per cent. of albumin in the urine, complete aphonia and no less than four considerable hemorrhages occurred during a period of about two weeks, thus leaving the patient reduced in flesh and greatly prostrated.

During this attack the patient was under the care of Dr. U. G. Gifford, of Avondale, Pa., received the best possible medical attendance, and there has never existed a doubt in the minds of her different attendants as to the true character of the disease, namely, pulmonary tuberculosis, and examination of the sputum confirmed the diagnosis.

This patient came under my personal observation and care on January 29th, and was given the usual supportive treatment together with the necessary anodynes and expectorants. At the expiration of ten days the improvement was not marked; the digestion was impaired and without some suitable expectorant mixture, cough was almost incessant day and night. There was a profuse secretion of mucus with subnormal temperature and nightsweats; the pulse was small, thready and irregular, there was constant twitching of the muscles and I began to fear Dr. Gifford's prognosis of an early and fatal termination would prove correct.

On February 7th, at 11 A.M., I gave the first hypodermic injection of the following formula:

℞ Alexin .... ♏x
Formalin .... ♏j
Aquæ bull., q. s., ad. ♏..xxx

To the above solution, before introducing under the skin of the left arm, I added four drops of a two-per-cent. cocain solution with a view to allay the irritation incident to the use of formalin, and although of immediate service, the analgesic effects were not lasting.

Within three hours the cough subsided, expectoration being arrested, and without other treatment patient passed a comfortable afternoon and night, pain in the left lung being sufficient to produce wakefulness.

February 8th. - Patient appears brighter, the character of the pulse has improved and the persistent coating of the tongue has cleaned off. Temperature, 97.5°, a rise of one degree since the previous morning. Treatment continued with the addition of a small quantity of petrolatum internally, to prevent the absorption of poisons from the alimentary tract.

February 9th. Same treatment continued with apparent improvement, although there was a slight loss of blood to-day, probably due to passive congestion.

February 10th. Treatment continued with another loss of blood, this time arterial, amounting to about a tablespoonful.

February 11th. Patient seems nervous and apprehensive; complains of pain in the left lung and muscular twitching is pronounced, so the hypodermic is omitted, calcium sulphid being employed internally to act as a lymph-glandular stimulant and favor the elimination of waste products.

February 12th. Treatment resumed. The tender spots in the arms at the site of the injections have subsided from the employment of the calcium together with hot fomentations, and there is very little cough, and no expectoration.

February 13th. Improvement continues; the appetite is better and the pulse more steady. Temperature reaches 98, and treatment is continued.

February 14th. Patient is now apparently in a fair way to recover, hypodermic treatment being employed for the last time. The petrolatum and calcium sulphid are continued. A specimen of the sputa taken at this date shows no bacilli, and although there is still considerable pain in the left side I attribute that to the damaged lung.

February 21st. Patient has made evident improvement during the week; the pulse is full, soft and regular, cough is infrequent with very little expectoration, nightsweats have disappeared and pain in the left lung is growing daily less. Patient says this side feels more comfortable than at any time for the past four years. Temperature is normal, appetite increasing and digestion very good indeed.

Remarks.—This patient in eight days had seven hypodermic injections, with the result of apparent recovery from chronic tubercular infection, the serum or alexin being fortified by the addition of formalin. While it would be unwise to claim an absolute cure, since the same physical conditions will predispose to successive invasions of the schizomycetes, and it will be necessary to increase cell resistance—by suitable diet, hygiene and out-door exercise—there is conclusive evidence that the progress of the disease has been arrested. Should there be a recurrence, the same treatment will probably again conquer the bacilli, and when such prompt effects are produced in hopeless cases, what may we not reasonably anticipate in the incipient stage of this disease? But it is too early to prophesy, and more extended trials will be required before the efficacy of the treatment is fully demonstrated.

I want to add a word here relative to the erroneous impression which obtains in respect to the efficiency of the so-called antitoxins. It is not necessary to saturate the system, which would be injurious; nor should the dose be infinitesimal, which would be useless. We should aim to adjust the dose in size and frequency to the capacity of the body cells and fluids to react, that is, to so unite that the chemical and physiological changes shall modify chemotaxis and result in liquifying and neutralizing the fungus or bacillus responsible for the disease known as tuberculosis. My idea is to *make the cells work.*

Philadelphia, Pa.

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HIGH VOLTAGE CURRENTS AND THE X-RAY.

By Stephen F. Horton, M.D.

[Note.—Following the several papers and discussions that have appeared in the columns of the Gazette we have received so many inquiries for further light on the subject that it has become quite out of the question to reply to all of them by personal letter. Some of our correspondents protest that while the medical press has been prolific of contributions on the subject of "high tension currents" and the X-ray, most of this literature is amateurish and superficial in the highest degree. The authors rush into print before they have digested the primary outlines of the topic they essay to treat, and therefore they talk much and teach little; they are more learned than lucid. Nor is it at all surprising, when we remember that this branch of electrotherapeutics is new and as yet without a literature. The authors of many of the current papers on this subject are mere experimenters, and either know very little concerning it or else do not know how to tell what they know.

True, the "high tension" current has been talked about for a number of years, but not the current now being brought into use as a high voltage current. The two are as different as can well be imagined. In comparison one is a pigmy and the other a giant, one is a six-miles-an-hour stagecoach, and the other is a hundred-miles-an-hour Empire State Express.

In view of the indefiniteness and inaccuracy of most that is being published, and hoping to elicit some practical points for our readers, we have asked Dr. Horton to prepare a paper setting forth the salient points of his exceptionally successful experience along this line. Having had ample opportunity to watch Dr. Horton's work, in which we have taken a deep interest, we are sure he has experienced some interesting details in connection with the X-ray that have received scant mention by other observers. We will, however, let the Doctor refer to these in his own language.—*Ed.* Gazette.]

I feel some degree of diffidence in attempting to respond to your request for the reason that while the air is full of talk about the newer phases of therapeutic electricity this talk has not yet crystallized into anything that can be called literature, therefore anything that I may say will necessarily be rudimentary, fragmentary and inadequate. Much bungling has been done and more will be done in connection with X-ray treatment before the profession will learn that not every enthusiastic experimenter will meet with success.

It will be well, at the outset, to attempt a definition of this mysterious manifestation which has been named the X-ray.

When, in a glass vacuum tube of suitable construction, which may be mentioned further on, highly electrified particles of gaseous matter, propelled at tremendous speed by an extra high voltage current from the cathode (aluminum) disk is abruptly opposed and stopped by a still denser body (platinum) doing duty as the anode a transformation occurs which the discoverer of the phenomenon did not attempt to describe, but which produces the peculiar manifestation now recognized and popularly known as the X-ray. As nearly as we can yet describe it, the X-ray is the result of the abrupt interruption of electrical discharges driven at incredible velocity from the aluminum to the platinum disk placed directly in its path.

When a current of high tension is discharged or projected into a vacuum tube arranged as described, if sufficiently intense or prolonged, the platinum sheet or disk becomes heated, first to redness, and in time to white heat, the cathodic current or ray being transformed into heat waves.

As no vacuum is absolute, an infinitesimal degree of oxidation of metallic particles occurs which increases the vacuousness of the tube. The more nearly perfect this vacuum the "higher" the tube is said to be. On the careful regulation of the vacuum in the tube or bulb depends the quality of the ray produced and determines its liability to produce burns or other undesirable effects. The market is just now being flooded with tubes that are either negatively good or positively bad, and if the latter they are practically worthless. If experimenters fully realized this fact, there would be less bungling and fewer reported failures.

In case of the best tubes,—those made in Germany have given best satisfaction in my hands, although not all tubes of German manufacture are good,—the vacuum is never constant, but varies with the manner in which it is used, and this variability increases with the age of the tube. As the cathode rays or current depend on this vacuum for their intensity and quantity, the resultant X-ray varies proportionately. On the nice adjustment of the vacuum tube, therefore, largely depends the success or failure of the work accomplished.

The next question of importance is, "How is the X-ray produced?" I have given a partial answer to this question in my effort to describe the ray.

The first experimenters relied on the static machine in producing the X-ray. Many are still using this form of generator, if I may so call it. The static machine is just now very popular with medical electricians, and it has its advantages and distinctive qualities. Under favorable conditions of the atmosphere it works well, but for any considerable work it needs a motor to drive it, and this adds another item to the apparatus required as well as to the expense; and, taken in connection with the difficulty of regulating the tube actuated by its current, and its contrariness in bad weather, I have not relied on it in my work. I have preferred the high frequency current derived or modified directly from the Edison, 110 volt direct current, as used on the lighting circuits. I have not succeeded in realizing good work from the alternating current, and therefore can not personally recommend it, although other operators have reported satisfactory experiences with this form of current.

Regarding volume or quantity I use 110 volts with 15 amperes, and when I can not secure this quantity from the street current I substitute a storage battery composed of 8 cells, the results realized being practically the same. The items of apparatus required consist of a motor operated independently by a current of four amperes. This motor operates the interrupter,—a mercurial, rotary or turbine pattern,—beneath which is attached a condenser which equalizes the current, correcting its unevenness as it flows from the street main.

Then follows my coil, consisting of primary and secondary windings, and having or giving a 12-inch spark. The primary windings are duplex, that is, two in number, parallel with each other and in series, using No. 9 wire. These windings may be used separately or together, and may be utilized to increase either the voltage or amperage, at will. The secondary winding is of No. 39 wire, is wound on six spools and comprises about 32,000 feet of wire. In passing the current through this coil I am careful to limit the quantity to 10 amperes, guarding the coil by means of a plug with a fuse that will burn out if the current exeeds this quantity. This obviates danger to the coils. I also interpose a rheostat by means of which I secure additional control over the quantity of current entering the coil box.

In giving this description of my present appliances I realize that the technique of electrical art is yet in its infancy. The experts are steadily evolving newer ideas and simplifying methods. Nothing final has yet been evolved. While I am utilizing what I consider the best forms of apparatus yet produced I have no doubt but within six months we may be able to attain even more remarkable results with simpler appurtenances and less effort. To-day we can only use the best appliances that to-day affords, holding ourselves alert for any and every substantial advance as it may appear.

When using storage cells I find it necessary to have them recharged after about eighty treatments of ten to fifteen minutes each.

The interrupter used in connection with storage cells is of the large spring pattern, and is simple in construction. The condenser is attached under the coils.

This apparatus is portable, although when it includes the storage battery and attachments the total weight is about 200 pounds.

I have been using two coils operated by storage cells, and one by the Edison current, for the past eighteen months, without accident or interruption to either of them. I attribute this rather extraordinary experience to the vigilance with which I look after every part of the apparatus. I am careful not to permit my storage cells to get too low, and I am especially careful not to let the mercury in the interrupter deteriorate too much from oxidation, which of course is constantly going on.

Finally, we come to the most important item of the entire outfit—the tube. In this connection I will try to state my own idea of the principles involved in the construction of vacuum tubes that will acquit themselves of satisfactory work, or in other words, that will enable us to produce an X-ray that is perfectly amenable to control, so that we may vary it to suit the requirements of each case in which we undertake to use it. In my experience tubes without the addition of a spark-gap can not be regulated for therapeutic purposes for any length of time.

As a matter of fact, all the tubes now in use are essentially Crookes tubes, with certain modifications. No radical departure from the model devised by Prof. Crookes has yet been successfully attempted. The so-called "standard" tube consists of a thin glass bulb about six inches in diameter, having two tapering, cylindrical projections at opposite ends or sides. Of the metallic disks set opposite each other within the bulb I have already given a sufficient description. These metallic disks are placed at a distance of three to four inches from each other.

In order to secure an X-ray of practically constant value it will be readily seen that we must provide ourselves with tubes which will maintain as nearly as possible a uniform vacuum, and which is at the same time readily kept under the perfect control of the operator. The fluctuation of the vacuum within the tube from low to high and vice versa is the essential thing to be constantly watched and corrected.

As regards the danger of burns I consider it a popular bugaboo, as with reasonable care it should be very remote. Each case treated should be carefully studied on its merits, and each individual condition and susceptibility accurately noted. By being constantly alert for the appearance of any discoloration of the skin, protecting the adjacent surfaces by a covering of metallic foil of considerable thickness, adjusting the vacuum in my tube as often as required to keep it practically uniform, and by gauging the distance between the bulb of the tube and the exposed area of the patient according to indications and the effect desired, I have met with no "accidents" worthy of mention. Nor do I ascribe this to what is so often termed "luck" or "good fortune," but simply to care and common sense in manipulation. The average effects resemble a mild sunburn and only twice in the course of many thousands of applications have I produced a dermatitis equalling that of a strong mustard plaster.

I realize the high frequency current, as an addenda to the X-ray, by means of a condenser and an adjustable spark-gap attached to the coil. The main coil is then connected with a smaller coil, connecting cords being attached indifferently to one or both poles of this smaller coil. The electrodes used with this current are all glass vacuum tubes, of which various shapes and sizes are manufactured, adapting them for use over uneven surfaces and within the various cavities of the body. The application of this current is very pleasant to the subject, and its range is more extensive than any of us have as yet imagined.

In a future paper I will report a series of new cases treated with the X-ray and discuss many new uses for the high frequency current.

As to the sphere and range of applicability of these currents I have used them as follows:

With the X-ray I have treated with practically invariable success a large number of epitheliomas, of the several varieties, some of them of inveterate character and long standing; lupus, rodent ulcers and localized eczemas. Of sarcomas my list includes the round and spindle cell varieties (small), and a few cases of round cell (large). I have treated but one case of internal carcinoma in which the diagnosis had been confirmed by microscopic examination. This case had been brought to the operating table, but the surgeon, after making his incision and examining the tumor declined to operate, saying that it was useless, as the patient would die within a few weeks at most. The result in this case (tumor and all indurations dissipated, patient satisfied that he is perfectly cured), being very flattering and entirely unexpected.

In malignant growths involving the tongue or throat I can not report any success. Perhaps this is owing to the impossibility of making satisfactory application of the ray.

In cancer of the breast results have been satisfactory in all cases in which there has not been extensive glandular involvement, with enlargement of the arm and hand. I have had no success when these conditions were present.

With the high frequency current I am having exceptionally good results in incipient paralysis, deafness from otitis media, chronic hypertrophy of mucous membranes, including strictures, in myalgia, lumbago and localized rheumatoid affections.

There seems to be almost no limit to the applicability of this violet ray, since it acts as a general and very agreeable tonic and stimulant to all the vital functions.

A very promising field for the effective use of the high voltage current lies in the direction of the discussion or dispersion of glandular enlargements. My experience has not yet been extensive, but reasoning from analogy and from such tests as I have been able to make, brilliant results may be expected in the use of this current in enlarged glands of any kind, but especially in case of the thyroid and prostate. It will also unquestionably prove a much more effective and reliable *vis a tergo* in connection with cataphoresis.

503 Fifth Avenue.

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TRUFFLES.

By Lawrence Irwell,
Buffalo.

Truffles are in Europe much prized as food, especially in France and Italy, but are little used in America.

Fruitful nature has reserved to herself the exclusive right of reproducing some of her most valued products. Among these is the truffle, the artificial cultivation of which is not likely to become an accomplished fact for the present, although there is no known reason why the secret should not eventually be discovered. There have, of course, been numerous attempts to transplant truffles, and many years of patient study have been devoted to the subject, but the result has not been a success, and the problem is still unsolved. Although nature guards jealously the process whereby truffles are evolved, she shows no stinting hand in their distribution. A small number of species are indigenous to the United States, and about forty to Great Britain. France, however, must be regarded as the real home of the truffle, and the cities named, Perigueux and Angouleme, both of them about one hundred miles from Bordeaux, have long enjoyed the reputation of furnishing the finest specimens of *tuber melanosporum,* and Perigord pie has attained a world-wide reputation. The common French truffle, like all true truffles, is a subterranean growth, and attains the size of a small potato, or an English walnut. It is a winter growth, and its flesh, when mature, is of a blackish gray color marbled with white veins. Late autumn and early winter are the best seasons for gathering, and such is the marketable value of this tuber that, in a reputed truffle district of France, very few escape detection. A chalky soil is best adapted for their growth; and at the foot of oak and beech trees a diligent search is made for them. The truffle receives marked attention from other than human seekers, however. Squirrels, and hogs, when they are turned loose to forage for themselves, are keen truffle hunters. Advantage is taken of the pig's taste for truffles to train it to hunt systematically for the underground prize. The odor of many truffles is so potent—epicures compare it with that of the finer specimens of strawberry—that it escapes through the porous soil, and thus affords to the keen-scented a clue to the treasure that lies beneath. When once a hog has tasted truffles, it needs but little encouragement to develop him into an inveterate truffle-hunter. Dogs, however, from their greater docility and the less voracious character of their appetites, are preferred for this business. The canine fungus-hunters receive their training while young, and the method generally pursued is the following: Finely cut or sliced truffles are mixed daily with their food until they become imbued with a liking for the flavor, and what is perhaps of quite as much importance, they come to regard the flavor of truffles as an inherent quality of all their food, so that the smell of truffles suggests a meal. The next step is to take the dog into the fields or woods and place a dish containing meat and truffles in some sequestered nook and cover it with earth. The dog is then encouraged to hunt for it; and the promptings of hunger contribute as much to the desired result as do the urgings of the owner, for the animal is never fed before being taken out. On finding the hidden dish, the dog is always rewarded with some little delicacy, which incites him to further exertions. In France, poachers for truffles are a great source of annoyance, and landowners are loud in their complaints of the damage done by them and their dogs or hogs.

In the Italian markets three years ago the best French truffles sold at three dollars per pound. Italy, however, is far from being devoid of truffles of its own. The Italians are very fond of these fungi, and they allow themselves a much wider latitude than they do in the case of those forms of fungus which grow on the surface of the ground. The ordinary meadow mushroom, with its delicate flavor, is in Italy considered poisonous; and the Italian peasants in some districts, renowned as they are for the extensive nature of their vocabulary of imprecations, can give vent to no more bitter curse than, "May you die of a pratiolo," the last word meaning mushroom, and mushroom poisoning being supposed to be the most fearful of deaths. To truffles, however, the natives of Italy are much more lenient, and less superstitious as to their unwholesome character. In the case of mushrooms, the policy adopted is, "Prove them harmless and we will eat them." With truffles, upon the other hand, it is necessary to prove the vegetables noxious before they will abstain from eating them. These facts are mentioned to show that if truffles can eventually be cheaply procured in our markets, there will be a brisk demand for them among the Italians who are very numerous in some of our large cities. These people, it must be remembered, are poor, and the price would have to be very low.

The Italian truffle (known as *tuber magnatum*) is essentially Italian. It is brownish outside, liver-colored within, and strongly scented with the odor of garlic. Some authorities say that the odor of old truffles of this species resembles a combination of onions and decaying cheese. Like its French brother, the Italian truffle is best gathered in the autumn, and is most frequently found in plantations of oak, beech, poplar and willow; but it differs from it in sometimes occurring in abundance in cultivated fields. The Italian peasants like truffles boiled or roasted in hot ashes; and the rich people prefer to import the best kind from France rather than patronize the varieties indigenous to their own soil.

In investigating the position of the truffle in England, the following facts came under notice. Of the forty well known species, *tuber aestivum* is the most esteemed, and if it were canned and sent to this country it would be appreciated, but this idea does not seem to have occurred to John Bull, who, in such matters, is not a "hustler." In size this truffle approaches a small apple, and it is covered with coarse and curious warts. It grows best between July and December, and prefers beech or oak woods, and either a chalky or clayey soil to any other. Its value (in England, of course) is from fifty cents to a dollar and a half per pound, and its odor, like that of its continental brethren, is strong and penetrating. As there are times when the demand for British truffles is greater than the supply, the result is that the public have palmed upon them a substitute, as is the case with other articles under similar circumstances. To get at the bottom of this attempted imposition has proved a difficult matter. It is certain, however, that the "false truffle" is a fungus of the puff-ball family, by name *scleroderma vulgare*. In England, at Epping Forest, near London, many needy Frenchmen and Italians earn a precarious livelihood by gathering this "false truffle," and selling it to the keepers of cheap restaurants. Indeed, it is largely consumed in the inferior eating places of a number of the great European cities. In France, large quantities of it are canned and exported as genuine truffles.

Upon enquiry, it has been learned that fifty per cent. of the British species of truffles have been found fit for food. The question therefore suggests itself, why are the various kinds other than *tuber aestivum* so little sought for? This query is not very difficult to answer. In England prejudice dies very hard; changes come slowly, and almost everybody is opposed to anything that partakes of the nature of an innovation. What shall be eaten and what shall not is decided by custom and habit. Almost all Englishmen when first they arrive in the United States object to eating frogs' legs. *Tuber aestivum* is considered a delicacy, and its virtues are recognized; but the other truffles are classed as poisonous by the greater part of the people, and they are rigidly eschewed as articles of food. This same blind prejudice is evidenced in the classification of all fungi which grow above ground as "mushrooms" and "toadstools." Not only in Great Britain, but to some extent here, the former are classed as fit for food, the latter as poisonous. The first-named includes in many persons' minds but a solitary variety—the meadow mushroom; all the rest are toadstools and are not edible. It is a well authenticated fact that signal failure has marked the efforts of those who have attempted to popularize the eating of British truffles other than *tuber aestivum.* The elevation of the poorer truffles to the status of edibility has proved an almost impossible task. It will probably remain for some enterprising American to prove to the obstinate Englishman that he is neglecting a useful article of food.

Germany and Holland, Spain and Algeria, all have their respective truffles; but they are all inferior to those of Italy, and cannot be compared with those of France.

Some ten years ago, a German naturalist, Alexander Bombolz, claimed to have transplanted and successfully raised French truffles. The measure of success, however, was so very small that the experiment was really a failure. At almost the same time a French gardener professed to have discovered a soil so adapted to the growth of the most highly prized truffle of France, that, had his assertion been correct, the world's trade would soon have been threatened with a very decided revolution, and truffles would by this time be sold in Paris at the French equivalent of two cents per pound. Between this and four dollars per pound, which was the retail price in the capital of France ten years ago, there is a vast difference. A committee of the (French) Academy of Sciences was appointed to enquire into the question, and it eventually reported that no great reduction in price need be expected. Time has proved the accuracy of this report.

During the year 1900, France exported nearly 600,000 pounds of truffles, of which 250,000 pounds went to England, 110,000 to Germany, 40,000 to Belgium, and less than 25,000 to the United States. The domestic (American) truffle is of marked excellence, and the importation from France is likely to decrease. During the past ten years considerable attention has been paid in California to the gathering and preserving of native truffles. In 1892, a party of Americans interested in the truffle trade went to Bordeaux (France) and made themselves familiar with the various processes of the export industry. The canning process is extremely simple, and almost exactly analogous to that adopted in the preserving of tomatoes and asparagus. The truffles are partially boiled, then placed in the can and sealed up in their own diluted juice. "Truffled" game, so popular in Europe, is simply a pheasant—or some other bird—stuffed with truffles, which for this purpose are cut into small squares and inserted in the article to be stuffed.

True and "false" truffles have already been referred to. The distinction between the two is so strongly marked that there is little difficulty in detecting an imposture, if the microscope is used. All truffles, like fungi generally, are produced by minute spore seeds, which when magnified five hundred diameters appear as large as a small pinhead. In the true truffles the spores are deposited in sacks which contain from four to eight spores and are embedded in great numbers in the flesh of the tuber. In the false truffles the spores are free, and are borne on supports technically known as spicules. Without the aid of the microscope, detection of false truffles is far from easy. Perhaps the most satisfactory test of the quality of the "most delicious product of the whole vegetable kingdom" lies in the eating of it. The time-honored test, traditionally so efficacious in the case of mushrooms, of placing a silver spoon in close proximity to cooking truffles in the belief that if good the color will remain unchanged, while, if poisonous, it will become deep black, must be abandoned as worthless. The deadly "toadstools," in reality mushrooms, for there is no scientific distinction, of the *amanitae* family do not blacken silver if freshly plucked. All fungi decay very quickly. In a short time a solid fungus may become a mass of microbic life, and charged with the vapors of decomposition. In boiling, sulphuretted hydrogen—or other noxious gases—are liberated, and a bright spoon, not necessarily silver, is quickly discolored. The silver spoon test would apply to fish, and is, in reality, a method of ascertaining freshness—nothing more.

To a certain extent, all fungi, except meadow mushrooms, are in somewhat bad repute in the eastern part of the United States as a result of the continued presence of a poisonous foe—a genuine genus of mushroom—which lurks among numerous friendly species. As it always has a "cup" round its base which touches the ground all the way around, there is little difficulty in distinguishing it. Unfortunately, however, edible mushrooms are liable to become infected by it, and the presence of a single poisonous fungus in a basket of the best truffles or mushrooms might endanger the lives of many persons. It is not too much to say that prejudice against underground fungi is even greater than that against those which grow on the top of the earth. Scientific research has, however, discovered, chiefly by aid of the microscope, that an extension of the list of edible fungi in general and truffles in particular may be made with safety. Those of us who choose to avail ourselves of the teaching of science and who occasionally feast upon the vegetable dainties which nature has placed at our disposal may, for a few years, be called "cranks," as all who introduce innovations invariably are.

In taste, truffles resemble meat somewhat closely. They do not contain a great percentage of albumin, and the popular French idea that they can take the place of animal food is an error. The animal affinity of both truffles and mushrooms is suggested in their physiological life, as all fungi reverse the order of other vegetation in imbibing oxygen and exhaling carbon dioxid, after the manner of animals.

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HARMONY IN RELATION TO HEALTH.*

By Rev. H. T. McEwen,

Amsterdam, N. Y.

The expenditure in vital force, time, and money to prepare men and women for their life work, is too great to have their service marred in quality, or diminished in quantity, by preventable disease, or to have it wholly eliminated by premature death. Buoyant health and virile longevity not only stand for the conservation of very high forms of energy, they are also the inspiration of much that is best in the world. They aim not simply at prolonged existence, which often borders upon senility, but at that dynamic, physico-psychological force which enriches services, whilst it multiplies them. That horizon is altogether too narrow for the facts which regards the length and efficiency of life as a question in which only the individual, his family, or his friends are interested. It is a problem of vast and vital social and economic interest. With every decade of our complicated civilization, the cost of preparation for life service is vastly increased. To secure a return which is at all adequate upon this larger and richer investment, we must lengthen the time of service, as well as improve its quality. This truth holds no matter in which of the world's great schools one receives his discipline.

In the future as in the past, the vast majority will come to their life work by the way of practical experience. Long ere they felt ready for it, grim necessity forced them into the fierce and incessant battle for bread. The difference between the remuneration at the beginning, when they lacked both skill and experience, and that at maturity, when they had come to the full plenitude of their powers, is an approximate measurement of what it cost them to secure their equipment. If pursuing this course, they should attain to the highest positions, as did Washington, Lincoln, and hosts of others, nevertheless they are not self-made, they only cooperate in the making. When they appeared upon the arena, they found much already prepared and provided for them. "Other men had labored, and they entered into their labors." Preceding centuries and pioneers had sown the seeds and watered with their tears and blood the growing plant, until when Washington came the consummate flower of liberty was ready to bloom. They prepared the opportunity which he embraced with such ability and fidelity. Lincoln was called upon to save the Union, not to found it. The forefathers had done that. Our social system knows other and richer unearned increments than those of land enriched by teeming millions of people. Self seeking is the world's discordant note.

Trade and technical schools have almost, if not wholly, supplanted the old apprentice system. The students who throng them did not erect the buildings, nor did they assemble the equipment. With the endowment they had nothing to do, and their tuition is not even adequate for the maintenance of such plants. These institutions are the gifts of the immediate past to the throbbing present. Not for individuals as such were they erected and endowed, but for individuals as they stand related to the entire social system. Therefore society has a right to expect ability and fidelity of service no less surely from these, than has the nation a right to demand patriotic and heroic service from those whom she trained at West Point and Annapolis. "No man liveth unto himself and no man dieth unto himself" is just as good sociology as theology. His notes are false and discordant, whose whole aim is to make a living.

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* Read before the March meeting of the Hundred Year Club.

Never did the number of men and women coming to their life work by the way of the colleges, universities, and professional schools increase so rapidly as now. What a noble heritage of treasured and transmitted scholarship, inspiration, endowment, and equipment do they find all ready for their use. Nowhere else is our indebtedness to the past and present more clearly seen than when we contemplate these institutions whose halls have been familiar with so many great teachers, and where men of undying fame caught much of life's great inspiration in the days of their youth. The five to ten thousand dollars requisite for the individual during the seven to ten years involved in such a course are not to be compared with the self-denial of the parents, and what the past has unstintedly given to the present, for their good. For the college-bred man and woman the past has made many of her truest sacrifices. Only upon the altar of living sacrifice and service can we begin to repay that debt.

All that we have mentioned is as nothing in comparison with the education we receive as the swiftly flying years come and go. A keenness and breadth of vision, a wealth of experience and wisdom, a symmetry and strength of character, which to nobility of purpose add power and efficiency. I can but mention this form of wealth; there is no adequate measurement for it. Consecrated to the glory of God and to the good of men, no other force is comparable to it in bringing on the day when not only shall war be learned no more, but when the petty envies, jealousies, and strifes which now make the world's discord, shall hush their strident notes, and hie them to their bottomless hell.

What might it not mean, if every such worker came to his appointed task possessed of buoyant health, with the added promise of a virile longevity. Contemplating what they achieved with the handicap of poor health, one can but wonder what Carlyle, Browning, Darwin, Huxley, and Herbert Spencer might not have done had the warm blood of perfect health coursed in their veins. How much steadier the ship of state would have held her course during the tempestuous days of reconstruction had Lincoln's hand but been on the helm! What might he not have done with his trained head, true heart, and sturdy common sense, backed as he was by the confidence and the affection of the North and the South! "Age is opportunity no less than youth itself, though in another dress." Much of their best work would have remained undone had Gladstone or Tennyson died at 70 years of age. The greatest book in the incomparable Bible, the Gospel according to Saint John, was written by an old man, and could have been written by none but an old man. In tenderness of heart, and clearness of vision it is unsurpassed. Whilst he mused the fires burned. Nowhere else does the heart of man come more nearly into perfect harmony with the law of God. He need be stirred by no selfish aim who pleads for length as well as strength of life. That wealth which is measured by lands, bonds, jewels, art can be transmitted for others to inherit, enrich, and enjoy. The truer wealth which we have been contemplating cannot be transmitted. With him who acquired, possessed, and used it here, it goes into that eternity of which time is but the threshold. For the world's purity, peace, and power, we need not only the wisdom which is true, but also that which is thoroughly trained.

Let it not be imagined that we have in mind only the superb physique of the trained athlete, when we plead for buoyant health. President Raymond of Union College in his address to the students of Yale the other day said, "The captains of industry are resisting the captains of war. The greatest man in college might be the champion athlete, for the sovereignty of force might be the greatest sovereignty in the youth's mind. But the king of the campus, exalted by the admiration and homage paid to him, and the flattery of his fellow students, realizes, when he gets out into the world of maturer struggle, that he has lost his kingdom, and that he must begin over again." It is the labor with intellect, not that with muscle which now controls. But it is easier to clothe the intellect with sovereignty, when the body is robed with health, than when racked with disease.

A popular writer has recently said, "It may seem strange to mix lectures on hygiene with mental and moral philosophy, but Nature has blended the facts of these realms as she has those of matter and life, and true science must take cognizance of it. Food, rest, and exercise acquire ethical qualities in that they affect the condition of the blood, then that of the brain, then the thoughts and emotions. "Physical weakness produces mental depression. Bad blood augments bad moral passion. A shattered nervous system rattles the will." All of which is a very emphatic way of saying that you must consider the whole man, body, mind and spirit or soul, if you are to get the best results. Physicians have been absorbed in mere physiology to the too great neglect of psychology and theology. Preachers have given almost exclusive attention to theology, ignoring too much both psychology and physiology. Whilst the laity have surged now this way and then that, losing the poise, balance, proportion, without which life's truest harmony is utterly impossible. Who does not agree with Horace Mann in his vigorous protest against that method of education, which taught how to calculate the courses of the planets in their orbits, but which failed to teach us how to care for and control this wonderful creature we call self. Millions of people find themselves out of harmony with God and men, who are simply the pitiful victims of dyspepsia, insomnia, over indulgence, or some other easily preventable woe. True, heredity has in it power or peril, as the case may be. Statisticians tell us that, provided there has been no crossing in the lines of our ancestry, that each one of us is in the course of only twenty generations, the descendant of 2,097,150 forbears. One cannot but shudder at the very thought of the impoverished, polluted blood, the benumbed sensibilities, the blighted moral nature, and the dwarfed intellectual powers which may be transmitted. He sincerely hopes and reverently believes, that here as elsewhere, there is in nature a law which in its onward sweep tends to supplant discord with concord. Our sky scraper buildings have broken our horizon and spoiled our scenery, but they have permitted us to learn from their lofty heights that the discordant, deafening din of the street becomes the harmonious hum of the atmosphere. We go but a few miles below where our factories belch forth the discolored, filthy water which they have taken from our crystal streams, to find that the old law of purity has reasserted itself, and we behold face and feature as in a mirror. Were there not some such force as this at work, one fears that transmitted weakness would long since have depopulated the earth. However much this may do for the race, it does not relieve the individual of his great responsibility. In his soul thrilling harmonies Paderewski is able to distribute responsibilities. Others constructed his almost perfect piano, whilst still others keep it in perfect tune for him. He is thus enabled to concentrate all his powers on the doing of one thing. Not so, however, in the harmony of life. The individual may improve, injure, or destroy that which heredity has given him. As harmony is the result of conformity to the laws of music, so too health means conformity with those physical, mental and spiritual laws, whose perfect combination and cooperation produce that most wonderful of all harmonies this earth will ever know, a perfect man. With such blundering as has thus far marked our course, it is not to be wondered at that disease, crime and ignorance fill the earth with discord.

Any good dictionary reveals the fact that the words "health," "wholeness," and "holiness" are of very close kin, if they are not even all from the same original root. There is a world of meaning wrapped up in this thought. Every one of us knows that health is a great aid to holiness and, vice versa, that holiness is a great aid to health, and we still further know that we do not get the whole man in all his splendid possibilities until health and holiness combine. I use the word holiness in its virile significance, rather than in a mere pietistic sense. No man ever broke God's laws of sobriety, purity, honesty. They stand to-day as they have ever stood, impregnable, inviolable. Men break themselves in the neglect of these laws, whether it be because of wilfulness or of ignorance. Wickedness is as thoroughly unscientific as it is irreligious. The very etymology of the word shows that its weaker sister, ignorance, is unscientific. The man who is thoroughly scientific, symmetrically developed, must of necessity be righteous. Whatever degrades the body, dethrones reason, or stains the soul, cannot but be abhorrent to him. True science not only glories in knowing God and his laws, but also in obeying him, and cooperating with them. Genesis revealed man not in his completion, but in the process of making. God's plan contemplated not simply the making of the first man in his image, but the making of every man in his image. "Let us make man in our image" is as surely the work of to-day as it was of that far off creative period, which first gave man his being. Nothing more conducive to individual and world-wide harmony has ever been conceived or attempted than the ideal which Jesus of Nazareth so distinctly announced, and so nobly realized. "My meat is to do the will of him that sent me, and to finish his work." Between him and God there was perfect accord. "I do always the things that are pleasing to him." All the truly great men down the ages have struck that same note with more or less distinctness. Its music charms the ear of all time. Social science to-day knows no higher, sweeter note than He struck in the Golden Rule. That the hearts of all men are after all keyed to this pitch was seen and felt again, when a few months ago, Secretary John Hay announced that henceforth the Golden Rule shall have place in all international questions, whilst islands and continents shouted a long, glad "Amen." "Man is not a mechanical music-box wound up by the Creator and set to play a fixed number of tunes. He is a human harp, with infinite possibilities of unawakened music." But, greater than even this, he may and ought to become the great master musician, who sweeping the keys of life shall awake life's divinest symphonies. The devoted wife and mother of all ages has ever taught the world that homeliest toil is yet compatible with divinest harmony. God has crowned her work by interpreting the joys and beauties of heaven in the language and imagery of home. God pity the men who do not know day laborers whose monotonous toil throbs with the beauty of fidelity. I am well aware that a distinguished violinist could elicit wondrous music with but one string; but I assure you that if you play upon but one string of life instead of sweeping all, you will secure discord, not harmony. Abundant and refreshing sleep, nutritious and palatable food properly assimilated, with sunlight by day even if you must have lamplight by night. these have ethical, and spiritual, as well as physical value. Whilst the new psychology admits that the entities are so distinct that they may exist, the one without the other, it none the less insists upon their radical unity and essential interdependence during the present existence. Body, mind and soul in perfect accord, this is holiest religion, it is also profoundest science. "What God hath joined together, let not man put asunder."

Vibrant through all I have said is the thought of harmony with the social system, as well as in the individual, for man finds his sublimest place not as soloist, but in the chorus. The world's greatest teacher summed it all up in those few words, whose key-note is love, "Thou shalt love the Lord thy God with all thy heart, mind, soul and strength, and thy neighbor as thyself."

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HOW THE WOMAN'S CHRISTIAN TEMPERANCE UNION FIGHTS THE PATENT MEDICINE ENEMY.

Editor DIETETIC AND HYGIENIC GAZETTE. —My attention has been called to your reproduction of the question of *American Medicine* regarding the W. C. T. U. and its failure to recognize the alcohol in proprietary medicines, and make an attack upon it. You will allow me, as did the editor of *American Medicine,* to tell you a little of what has been done by the W. C. T. U. in opposition to patent medicines.

The W. C. T. U. has a department of work called Non-Alcoholic Medication. The object of this department is to acquaint our own members, and through them as many others as possible, with the teachings of successful physicians like N. S. Davis of Chicago, the late Sir B. W. Richardson of London, Sims Woodhead of London, Max Kassowitz of Vienna, Adolf Frick of Zurich, and others who have laid aside the use of alcoholic drinks as remedies in illness, declaring them to be unnecessary and often harmful. As I have the responsible position of superintendent of this work for the National W. C. T. U., a physician who is deeply interested in this department, and one of its advisers, suggested that I study the subject of concealed alcohol in proprietary medicines, and pass along the results. At our great convention in Buffalo in 1897 I sent the first shot into the ranks of the "enemy" by giving in my report the percentage of alcohol in Paine's Celery Compound, Greene's Nervura, Ayers' Sarsaparilla and Hood's Sarsaparilla. The reporters of the daily press said they could not publish these figures as it would interfere with the advertising columns of their papers!

The next year I secured copies of several reports of the Mass. State Board of Health, by courtesy of the secretary, and aided by them and by the editors of several high-grade pharmacy journals, I prepared a small pamphlet, entitled, *The Danger and Harmfulness of Patent Medicines.* A copy of this was sent to every local W. C. T. U. in the United States to be used as a study. The pamphlet made a decided sensation, and thousands were distributed, some putting them into almost every home in their town, and many reading them at public gatherings.

Then several patent medicine firms threatened lawsuits against our women, and frightened some from further work in this direction, but as these firms saw that the women had the authority of state chemists behind them they ceased from troubling.

The next step undertaken by this department was the publication of a book entitled *Alcohol, a Dangerous and Unnecessary Medicine.* This was largely a compilation of the opinions of great physicians such as those before mentioned. One long chapter, however, was devoted to "Alcoholic Proprietary Medicines," and one to "Drugging." The chaper upon Proprietary Medicines gives a startling expose of frauds and fraudulent advertisements, together with per-centages of alcohol in many of the best known preparations and in most of the malt extracts on the market. This book is used for study in hundreds of unions, and has been placed in many libraries.

Protests have also been sent to religious and temperance papers advertising alcoholic medicines; not always with success, however.

The W. C. T. U. leaders are all well-informed upon this subject, and will be glad to coöperate with medical societies or state boards of health in endeavoring to secure legislation which shall to some extent hinder the patent medicine syndicates from further depredations upon the health and wealth of the people.

I am now offering a prize of $12 for the best humorous article, suitable for recitation, showing the evils and absurdities of the use of these medicines, and $10 for the best oration upon the same subject; contest will close June 1. Perhaps some of your readers could help me by preparing such articles. Conditions of these prizes may be obtained from me. I shall be pleased to send a copy of the pamphlet upon Patent Medicines to any address for cost of mailing, 2 cents. Yours respectfully,

(MRS.) MARTHA M. ALLEN.
348 Delaware St., Syracuse, N. Y.

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AUTO-INTOXICATION.

RECENT research has gone far to emphasize the importance of the rôle of toxic agents in the production of disease. Many of these are introduced into the system from without, and concerning their nature and action considerable knowledge has been acquired; but not a few morbid states are now known to arise from toxic conditions of autogenetic origin, and regarding these we are still in much ignorance. Dr. Allan MacFadyen, in a recent number of the *Polyclinic,* presents a convenient grouping of the more definitely recognized forms of auto-intoxication:—(1) Those resulting from a failure of function in certain organs, with, as a consequence, non-neutralization of poisonous metabolic products: myxedema, pancreatic diabetes, acute yellow atrophy of the liver, and Addison's disease are examples. (2) Those due to metabolic anomalies whereby intermediate metabolic products enter the circulation, as occurs in gout and diabetes. (3) Those resulting from the retention of metabolic products in various organs, as seen in the symptoms following severe burns, carbonic acid poisoning, and uremia. (4) Those dependent on the over-production of physiological and pathological products, instances being acetonuria, cystinuria, and diabetic coma. Indeed, it would almost seem that every class of cell may be capable, should it depart from its normal function, of acting as a centre for the formation of products which may exert a deleterious influence on the organism as a whole. We have much still to learn regarding auto-intoxication, but doubtless a deeper study of pathology will show it to be an important factor in the production of many phases of disease the causation of which at present remains obscure.

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EDITORIAL GAME LAWS.

THE editorial game laws are stated in an Eastern publication to be as follows: "Book agents may be killed from October 1st to September 1st; spring poets from March 1st to June 1st; scandal mongers from April 1st to February 1st; umbrella borrowers from August 1st to November 1st, and from February 1st to May 1st. Every man who accepts a newspaper for two years and on being presented with the bill, says 'I never ordered it,' may be killed on the spot without reserve or relief."—*Medical Review.*

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE INSTINCTS AND EDUCATION.

THE ultimate origin of mind, like the ultimate origin of matter, writes Thomas M. Balliet, Ph.D., in a paper published in *Am. Physical Education Review,* is still an unsolved mystery and may forever remain such. It is not the purpose of this article to discuss this question, fascinating though it is as a field of speculation, but rather to trace the more immediate origin of the instincts, to indicate their nature, and to show briefly their bearing on certain problems of education.

The statement that animals are guided by instinct and man by reason is a commonplace of the older literature of psychology, and yet it is but a partial truth; and the usual corollary of this statement, namely that animals have instinct and no reason, and man has reason and no instincts, is wholly false. The higher animals must be credited with reasoning powers, and man has more instincts than any of the lower animals, although in a normal life they are overshadowed and controlled by reason.

Mind, like organic matter, no doubt is a product of evolution. This, at least, is the assumption of all modern scientific psychology. Just as the anatomist and physiologist must study individual organs of the body in the light of embryology, so the scientific psychologist must study the various mental phenomena in the light of the embryology of the mind; and to-day the profoundest problems of psycholgy are not problems of psycho-physics, but problems of genetic psychology. The theory of evolution is at present the working hypothesis in psychology.

As in organic evolution, while it is possible to explain why the fittest should survive, it is impossible to explain the origin of the fittest; so in the evolution of mind, natural selection, heredity, and perhaps use, may explain why a psychic function of advantage to the individual in the struggle for existence has been perpetuated and developed, but it cannot account for the first origin of such function. "Fortuitous" and "spontaneous" variation are the technical terms which still designate our ignorance of this subject.

The struggle for existence, reduced to its lowest terms, consists of the struggle for the maintenance of the individual life and, the struggle for the maintenance of the life of the species. The first is obviously fundamental to the second. Hence the first problem of the lowest organisms is to secure food and escape danger. Movement is therefore fundamental—movement toward food and movement away from danger; and in the study of instinct this fundamental character of movement must be constantly borne in mind, for unconscious "purposive" movement, no doubt, antedates consciousness.

Mind evolved because it became of advantage in the struggle for existence. Up to a certain point the perfecting of the body was all that was necessary to effect the movements necessary to maintain life. To illustrate, at first length of legs could effect the necessary speed to escape the enemy, but as increase in the length of legs and the strength of muscles also involves increase in weight of body, it became more effective, in the course of time, to add the psychic element of fear and thus make existing legs more efficient. The function of the psychic element was to intensify the movement. In like manner, strength of body, sharpness of teeth and claws, were for a time sufficient to destroy the enemy; but on account of the increase in weight it was more economical for nature to add anger, in the form of fierceness, and make the existing physical mechanism more efficient. It is a fact that in many instances the very architecture of the animal is a clear indication of its psychic life. Some animals protect themselves against their enemies by fleeing from them, others by destroying them; the former have long legs, wings, or protective covering, and are characterized by the feeling of fear; the latter have sharp teeth and claws and are characterized by the psychic quality of fierceness. A timid tiger or a fierce antelope would probably not long survive in a state of nature. This striking correspondence of psychic with physical qualities has led some writers to suggest that the psychic qualities are fundamental and bear a causal relation to the physical; but while this speculation is profoundly interesting, and is in harmony with much of the freshest current metaphysical thought, it must nevertheless be recognized that it is not a proved scientific truth, but only a hypothesis which at best has strong evidence against it as well as in its favor. To take animals as high in the scale as the tiger and the antelope to illustrate the beginnings of mind is, it must be confessed, to go "in medias res" in altogether unscientific fashion, but they serve to show the primitive function of mind as a means of intensifying movement, better than examples taken from the lower forms of life in which movement may be unaccompanied by consciousness.

The perpetuation of the species involved a series of movements first to effect fertilization and secondly to feed and protect the offspring. These processes of nature, so vital to the very existence of animal life, were gradually accentuated as evolution progressed by the development of the feelings of sexual passion and of love of offspring. This reënforcement, which comes from the psychic element, became the more necessary in the higher forms of animal life because of reduced fertility. Animals which reproduce their kind by the hundred thousand or by the million can with impunity neglect their young; but animals which reproduce at the rate common among the higher animals would soon become extinct if it were not for the love of offspring which prompts them to protect their young.

Primitive psychic life, then, developed, no doubt, first in the form of feeling in connection with the movements necessary to maintain the life of the individual and the life of the species; and its function was to intensify these movements. Hence there arose the feeling of anger, of fear, and of sexual passion and of love of offspring. Together with these there developed also feelings in regard to which the ignorance of the psychologist reaches its maximum—namely those of pleasure and pain.

The order of mental evolution seems to have been as follows: Movement was fundamental; feeling developed to stimulate and intensify movement; intelligence developed to guide movement; and volition developed to determine movement in the light of remote conditions. *Feeling, intelligence* and *will,* and not *intelligence, feeling* and *will,* is the order of evolution; and this order, if I may anticipate, has a bearing on certain problems of education.

What is an instinct and what is the place and the function of instincts in this process of evolution?

There is no universally accepted definition of instinct; but I think we may describe it in a general way as an inherited form or mode of psychic activity which can be modified but little by the environment. Instincts are not psychic activities distinct from all other psychic activities, but they are rather identical with them. There are instinctive feelings, instinctive thought processes, and instinctive elements in volition. There are no instincts apart from these.

The so-called "intuitions of the reason" are in their essential nature instinctive, for they are inherited and are almost unchangeable. The whole science of mathematics is based on the instincts of the reason. There are moral instincts which form the fundamental element in that complex psychic activity which we call the moral sense, or conscience.

If this is true, it follows that the instincts are fundamental in the psychic life of man as well as in the psychic life of animals; they form the most fundamental, the deepest, and the most unchanging elements in human nature. As compared with the instincts, the human reason is only a light which can guide and direct, but not a force which can impel and move; and the ethical will is little more than a combination of the higher instincts controlling the lower, under the guidance of reason. The instincts, in other words, constitute the chief elements of character; it is the function of the reason to distinguish between the higher and the lower instincts, and that of the will to make the higher prevail. It is the office of ethical ideals and of religion to serve as guides and as sources of inspiration in ethical development.

It is a well established fact that the human body before birth passes through all the stages, with few exceptions, of the animal life of the entire series, from the unicellular organism to the fully developed human form. In passing through these various stages, organs functionally active in animals are also prominent in the developing human organism representing that particular stage. These are afterwards in part absorbed and contribute to the building up of other tissue. Later, other organs become prominent and are absorbed in similar fashion. If any of them maintain themselves permanently, the mature body is characterized by certain well-known deformities which may make it literally a monstrosity. Embryology has taught us the origin and meaning of all this.

As a result of this prenatal development, the normal human body is the bearer of some one hundred and thirty organs which are not functionally active and which are apparently useless. In view of this fact some one has called the human body an "old curiosity shop," containing many interesting but useless relics.

As already mentioned, the function of these rudimentary organs is to contribute to the growth of higher organs. It has been found that, although the tail of a tadpole is to be only a temporary organ, if it is prematurely cut off the hind legs will not develop normally. It is the function of the tail to be absorbed and to contribute to the development of the legs. Moreover, if the tail should by chance remain a permanent appendage, the resulting frog would be a monstrosity, and would find itself seriously handicapped in the struggle for existence. It is this marvelous process of metamorphosis, by which, in the normal development, the lower is steadily taken up into the higher, that Victor Hugo had in mind when he exclaimed, "I am the tadpole of an archangel."

In like manner the psychologists are now endeavoring to trace the steps through which the individual human mind passes from the dawn of consciousness to maturity. In short, they are working at the problem of tracing the embryology of the mind. Just as there are rudimentary organs in the human body, so there may be rudimentary instincts in the mind. Just as the rudimentary organs of the body are more developed in the early stages of its growth, so rudimentary instincts may be more prominent in consciousness in the early years of infancy and childhood than later.

Indeed, it is highly probable that there are instincts in the child's mind which dominate his conscious life and which have either entirely disappeared in the adult consciousness or occupy a wholly subordinate position. The sucking instinct may be cited as a case in point. Physiologically it is an inherited reflex, mature at birth; psychologically it is accompanied by a feeling of pleasure which amounts to a dominant feeling in the infant consciousness. His entire happiness depends on it. Yet this instant passes away so early in life that no adult man or woman can recall that he has ever had it, or can realize how strong was the feeling of pleasure connected with the act of sucking quite apart from the taste of food. The instinct has completely dropped out of the adult consciousness. This early loss of instincts explains in part why we understand so imperfectly the nature of children. The man of three score and ten in whom the play instinct has long since been dead finds it impossible to realize why children should wish to romp and play and try his patience to the uttermost.

But not all instincts die early; many of them remain through middle life, and some of them stay with us to old age.

Most instincts are strongest in youth and they form the source of youthful temptations; but some of them are strongest in old age, like the love of money and the antipathy no new ideas, and form the besetting sin of the old man.

It would be quite impossible to enumerate even with approximate completeness the instincts which constitute our early psychic life. But a few may be selected as examples to illustrate some general truths in regard to them.

We are all familiar with the fishing and hunting instinct which is so strong up to middle life and often persists until the approach of old age. It is an instinct that was formed in prehistoric times when fishing and hunting were necessary as means of maintaining life. It was practised for so many ages that it became registered on the nervous system and is transmitted by heredity.

There is the killing instinct, which is almost identical with it, and which was formed when killing was necessary as a means of securing food or as a means of self-defense. These instincts will probably grow weaker in the race as centuries come and go, just as they become weaker in the individual as the years pass by. The development of sympathy, and the altruistic group of feelings generally, will hasten the decay of these instincts. They have, in fact, already suffered decay in many minds to an extent that robs even hunting and fishing of their fascination; and there are not a few people who, if they were obliged to kill the animals whose flesh they help to eat, would probably resolve never again to eat flesh while the world standeth. The time will undoubtedly come when the eating of any food which involves the killing of the higher animals will be looked upon very much as civilized man now looks upon the eating of human flesh. Indeed, we might say that, so far as food is concerned, there are at least three stages of civilization—roast missionary, roast beef, and vegetables. The human race has got as far as roast beef.

Then there is the fighting instinct, which was formed by our animal ancestors, and by our more direct forefathers who dwelt in trees, and who later lived in clans and tribes whose normal relations were those of war. This instinct was necessary in the days when food was scarce and the welfare of man required that the strong rather than the weak should survive and perpetuate the race. Might was right in those early days when there was not as yet, as there is now, any altruism to sacrifice; and when the highest interests of the human species required above all else that there should be developed a healthy body and a vigorous mind.

There is the instinct of possession, the predatory instinct, which is usually greatly reënforced by the fighting instinct, and which can be traced from the earliest struggle among the lower animals for food to the modern accumulation of fortunes. This primitive predatory instinct has been greatly reënforced in its modern form by many other instincts, but its essential nature has not been much changed.

How are these instincts to be treated in education? They form what has been known in theological literature as "original sin." But "sin," as implied in what has already been said, consists in the subordination of the higher instincts to the lower, more especially of the altruistic to the egoistic, and not in any group of lower instincts as such. All instincts and impulses are right in their place. What then is to be done with these so-called "lower" instincts in education? Three modes of treatment are possible:

1. We may try to crush them or root them out. This is what has been attempted—though fortunately seldom accomplished—in religious training in the past. This theory is that of stoicism and of puritanism. The Puritans objected to bear-baiting, as Macaulay said, not because it tortured the bears, but because it gave pleasure to the torturers. Pleasure as such was wrong. Perhaps a trace of this philosophy still remains with us in our faith in stomach *bitters*.

2. We may let these instincts grow wild, unchecked. This is the philosophy of Epicureanism—not indeed of the high, spiritual Epicureanism of Epicurus himself, but of that lower Epicureanism which is commonly understood by that name. More frequently this mode of treating the instincts is not based on any philosophy at all, but is the result of neglect of training and parental care.

3. We may transform the lower instincts by lifting them on a higher plane, by putting them under the dominance of the higher instincts, linking them with the altruistic impulses and with the sense of duty—by hitching their wagon to a star.

This seems to be the mode of treatment pointed out by the evolution of the mind. The lower elements of psychic life, like the rudimentary organs in the body, are not destroyed or lost, but they are taken up by the higher forms and become integral parts of them. They are "absorbed," not dropped off. These instincts constitute the driving and impelling forces in our higher intellectual and moral life. They add a glow of interest to our ideals, they fire our ambitions, and they furnish the grit, nerve and energy that makes hard work a pleasure and renders it effective.

If you crush the fighting instinct, you produce the coward; if you let it grow wild, the brute; but if you link it with the higher instincts, you get the man of energy and force, the man of executive ability, of affairs. If you crush the instinct of possession, you get the pauper—who differs from the worthy poor not in that he cannot dig, but in that he is not ashamed to beg; if you let it grow wild, you produce the thief or the miser; but if you transform it by putting it under the dominance of conscience and the altruistic feelings, you develop the man of thrift, self-respect, independence and industry.

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ARSENIC IN FOOD AND MEDICINE.

THE following article, reproduced from *Public Opinion*, reminds us of the fact that Professor Bloyer some months ago called attention to arsenic as being probably one of the factors overlooked in the deleterious effects of some beers. Immense amounts of arsenic have been thrown upon the market in England in the shape of food products and drinks, among which beer stands conspicuous. Some months ago I wrote an article calling attention to the fact that large quantities of arsenic in the form of Paris green were being used by American tobacco-growers for the purpose of killing worms, and that, so far as I learn, it had never been proved that this arsenic did not go into the tobacco leaf, to become a subject of danger to the users of tobacco. The question is yet an open one. Mr. Hutchinson seems to have considered the matter without the knowledge that I possessed regarding the fact that that such quantities of arsenic are employed in tobacco culture, to which I add that it seems reasonable to suppose the artful Chinaman introduced this arsenic into his tobacco for the same reason that the American grower uses it, namely, to protect the plant against insects rather than give a garlic flavor to the dried drug:

"*Arsenic as a Cause of Disease.*—For long it has been known that arsenic was capable, under certain conditions, of producing serious lesions. The very serious outbreak of arsenical poisoning arising from gross contamination of beer, which recently caused so much suffering in the north of England, has done much to arouse interest in the nature of the toxic action of arsenic. Much important material has been collected and numerous suggestions have opened up fresh paths for investigation. It would seem that much of the "alcoholic neuritis," so long a common clinical entity in Manchester and district, was really of arsenical origin.

"It is, of course, irrational and unscientific to jump to the conclusion, as some have done, that all peripheral neuritis in alcoholics was of arsenical causation; but the proof is clear that in some districts arsenic has for many years been present in appreciable quantities in malt liquors. There is also good ground for believing that the muscular degeneration which so conspicuously involved the myocardium of beer drinkers, producing the so-called 'alcoholic dilation of the heart,' formerly exceedingly common in Lancashire, also arose in many cases from the action of arsenic. It would seem that alcohol has the power of increasing the toxic action of arsenic on human tissues.

"An attempt has been made to show that beriberi, an important tropical disease, fortunately but rarely met with in this country, is also dependent on the introduction of arsenic. The main evidence presented is that arsenic has been found in the hair of beriberi patients. But Dr. Patrick Manson has recently shown that Chinese tobacco often contains appreciable quantities of arsenic, introduced apparently mainly with the idea of giving the weed a garlic flavor. And Gautier, it will be remembered, has contended that arsenic must be considered a normal constituent of hair and other human tissues, although it must be admitted that such contention has not received adequate substantiation.

"Mr. Jonathan Hutchinson seeks to show that arsenic may have an etiological relationship to cancer. In the October number of the *Polyclinic* he accepts as proved that chimney-sweepers' cancer is caused by the local irritation of arsenic. 'The fact that neither coal dust nor wood ashes could cause it has long been recognized. Neither charcoal burners nor coal miners are liable to soot cancer. Its subjects are chimney-sweepers, stokers, gardeners and others who come in contact with coal soot. Now, coal soot contains large quantities of arsenic, and the condition of skin which it produces in chimney-sweepers is, in all respects, exactly like that which occurs occasionally in connection with the too long continued medicinal use of arsenic. The chain of evidence appears, therefore, to be complete.'

"Mr. Hutchinson now advances a step further: 'That the habit of smoking is productive of cancer may be taken to be as well established as that exposure to coal soot can cause it; but we have not as yet demonstrated that in this instance it is the presence of arsenic in tobacco that is influential.' Mr. Hutchinson is rich in suggestions, but we venture to think that, until more adequate evidence is forthcoming, pathologists must abstain from any dogmatic expression, which can only hinder progress and give rise to needless anxiety to the public.—PROF. JOHN URI LLOYD, in *Med. Gleaner*.

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THE EFFECTS OF THE EMOTIONS UPON THE BODY.

A SHORT review in a daily paper of a book entitled "The Emotions," recently published by Dr. Lange, an eminent Danish scientist, very clearly and concisely points out the effect of the principal emotions upon the body. It says:

Dr. Lange holds that what we call sorrow is merely the physical change resulting from the impression received by the brain. Sorrow can be cured by medical treatment. It is chiefly a diminution of the nervous force, accompanied by impairment of the circulation and a sense of weakness.

Many extremely interesting facts are explained in Dr. Lange's book. He explains why joy is beneficial to the nervous system.

All the emotions are accompanied by certain modifications in the nervous chain (technically known as innervation) connected with them. They are expressed by certain characteristics easily observed on the face when they reach a certain intensity. Joy, sorrow, anger and fear are naturally expressed upon the physiognomy.

Sorrow and fear are shown principally by a diminution of the nervous force. The face of the man who is sad becomes lengthened and flabby on acount of the weakening of the muscles of the jaws and the cheek. The lower jaw hangs down and the corners of the mouth droop. The eyes may seem large because the orbicular sphincters are paralyzed, but it may also happen that the upper eyelids droop on account of the weakness of the muscles which hold them up, and thus the upper part of the eyes will be covered.

In cases of joy and anger, on the other hand, there is an excess of nervous force. The muscles contract. The result is the opposite of the lengthened and softened face of the sad man. Scientifically considered, joy is a healthy exercise for the nerves. Sorrow ages, joy rejuvenates. In joy the eyes shine and sparkle. They have a peculiar expression of color which comes from a contraction of the muscles of the eyelids and a modification of the pupil.

Dr. Lange has explained the modifications undergone by the voluntary muscles, the visceral muscles and the vaso-motor muscles in various emotions. All these systems may receive a nervous impulse which is either too strong, too weak or irregular, causing contraction, relaxation or loss of control. As they may be differently affected by one emotion an infinite variety of combinations may be produced.

Dr. Lange has compiled the following table of the results of various emotions on the nervous and muscular systems:

Disappointment—Diminution of voluntary nervous force.

Sadness—Diminution of voluntary nervous force and vascular constriction.

Fear—Diminution of voluntary nervous force, vascular constriction and spasm of organic muscles.

Embarrassment—Diminution of voluntary nervous force and inco-ordination.

Impatience—Augmentation of voluntary nervous force and spasm of organic muscles.

Joy—Augmentation of voluntary nervous force and vascular dilation.

Anger—Augmentation of voluntary nervous force, vascular dilation and inco-ordination.

The importance of Dr. Lange's investigation from a medical point of view is that the bad effects of depressing emotions, such as sorrow and fear, can be remedied by removing the bodily effects of that emotion. What we call sadness is, according to Dr. Lange, simply the knowledge, more or less unconscious, of disagreeable phenomena which are taking place in the body. He suppresses fatigue and weakness of the muscles in the person who is sorrowful, restores circulation to the surface and to the brain, and then nothing remains of sorrow but the memory of what caused it.

A certain mental state disturbs our health, and we have an emotion when we become aware of this physical change.

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"Nature" tells of an indoor snowstorm on a very clear, cold evening at a party given in Stockholm, Sweden. Many people were gathered in a single room, which became so warm as to be insufferable. The window sashes were found frozen, and a pane of glass was smashed out. A cold air current rushed in, and at the same instant flakes of snow were seen to fall to the floor in all parts of the room. The atmosphere was so saturated with moisture that the sudden fall in temperature produced a snowfall indoors.

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THE DEGENERATION OF CITY DWELLERS.

By Sir James Crichton-Brown, M.D.

Unhappily there is evidence of a striking kind that the people, of our large towns at any rate, are physically deteriorating. Mr. Arnold White has told us that of 11,000 men who volunteered at Manchester for service in South Africa only 3,000 were accepted as physically fit, and of these only 1,200 came up to the standard of what a soldier ought to be; and Colonel Borrett, the Inspector-General of Recruiting, in his recently-published report intimates that of 75,750 men medically examined last year as many as 22,286, or 29.04 per cent. were rejected for various ailments or want of physical development, adding that among the class of men from which recruits are drawn deterioration of the teeth appears to be rapidly increasing.

As of course only men with what is regarded as a reasonable prospect of acceptance present themselves at recruiting stations, there must be among the masses, behind the dismal squad of the rejected, huge battalions of patently disqualified men—mentally defective, deformed, crippled, scrofulous, purblind, knock-kneed, flat-footed, narrow-chested—to whom no thought of soldiering ever occurs. The sum total of our physical shortcomings must be a figure that it would be woful to contemplate. But apart from statistics, any one who has watched the stream of men, boys and girls issuing from a factory in the East End of London or any large town in any country must recognize the fact that they are stunted and pale and weak-looking when compared with our agricultural population.

It is among the toilers of our large towns that physical decadence is going on. There is also going on a continuous increase of the town population that is exposed to degenerative influences, and a continuous decrease of the country population from which the towns draw their sound and robust reinforcements. Of the inhabitants of our city slums it is alleged that in the third generation they are either sterile or, at best, capable of giving birth to infirm or rickety offspring, and in this connection it is to be noted that whereas in 1875 there were born in the United Kingdom 35 children for each 1,000 population, the births in 1900 were only 29 per 1,000.

The decline in physical vigor of our urban population must of course be attributed to the conditions of town life generally, but of these there is, it seems to me, one predominantly influential, and that is insufficient feeding during infancy and childhood. I do not by any means overlook the deteriorating influence of foul air, bleached sunlight, dirty dwellings, intemperance, infectious diseases and chronic emotional depression; but still I maintain that it is the want of sufficient nourishment during the growth period that is the principal cause of the dwarfing and enfeeblement of our townspeople.

We can scarcely be surprised to find degeneracy of offspring when we learn that large numbers of mothers of the poorer working classes are during nursing confined to a diet consisting almost exclusively of bread, dripping and tea. The children of the mothers of this poorest section (those of whom a considerable contingent may be seen every Monday morning seated with their little weekly bundles on the steps at the door of the pawnshop waiting for it to open) are said to present a pathetic spectacle. They bear in their puny bodies sore eyes, filthy heads, swollen glands and lame joints, the unmistakable marks of privation and neglect; they are sent out into the world grievously handicapped. Through no fault of their own, these dirty atomies have been deprived of their germinal birthright, they have been subjected to sufferings that leave scars behind, they have had their store of vitality reduced, and so are left with a diminished power of resistance to the temptations to which they will be exposed, and to the disease germs by which they will be attacked, and with a diminished capacity for bread-winning; and they have been cheated of fair proportion, and disfigured in a way that is past remedy.

It is a lamentable fact that no subsequent supply of nourishment, however liberal, will fully conpensate for starvation during infancy and childhood. Time lost in growth can never be made up. Thus it has been found on training ships, to which pauper boys from metropolitan unions and parishes have been sent, that under most generous treatment, and living singularly healthy lives, they always remain more or less stunted in development. The boys sent to these ships are selected and are certainly not of the worst and most depraved pauper class, but while a marked and most encouraging improvement takes place in their bodily health, bearing and general intelligence, they retain in their low stature a record of the hard usage and poor feeding of their early days.

I have dwelt on the feeding of children, because that is, I believe, the paramount consideration in relation to their physical efficiency. "Whence shall we buy bread that these may eat?" is, to my thinking, in its economical and national aspects, the pressing question of the hour, for enhanced physical efficiency is indispensable if we are to hold our own in the world. The United States of America are becoming formidable in their rivalry to us, not only because of their spirit of enterprise, fertile ingenuity and boundless resources, but because, as recent investigations have proved, their workers are better nourished than ours. Poor families in Philadelphia, Chicago and New York have a considerably better food supply than poor families in Liverpool, Manchester and Glasgow, and adopting Atwater's standard, it is found that laboring-class families in our large English towns are seriously underfed, receiving only an average of 2,685 calories of fuel energy and 89 grms. of protein per man per day, thus showing a deficiency of 23 per cent. in the case of the energy value and 29 per cent. in that of the protein.

It is for my profession to supply information as to the best and most economical foodstuffs, and as to the best balanced dietaries for the working classes. On that subject I dare not enter here, beyond pointing out the dangers of the faulty bread and tea meal, and the high value of porridge and milk. It has been calculated that an entire day's diet of tea, bread and butter on the one hand, and of porridge and milk on the other, gives a balance in favor of the latter of 22 grms. of proteid, 32 grms. of fat, and 100 calories at a cost of 4-5d., against 5-2d. for the tea, bread and butter diet, a saving of .7 of the 1d. or nearly ¾d. a day. Unhappily, porridge and milk have lost their former firm hold on Scotland as its standing dish, but they seem to have commended themselves, at least as an addition to breakfast, to the well-to-do classes south of the Tweed, and perhaps the working classes in England may be brought to recognize their advantages as well as those of lentils, beans, peas and bacon, also highly nutritious and cheap foods.

But while insisting on the cardinal importance of feeding in relation to physical development, I would not, of course, ignore its other conditions, though it is not in my province to enlarge on them now. Wholesome dwellings, fresh air, pure water, exercise and repose, are all requisite for good growth, and the want of any one of them is conducive to physical degeneracy, which I have no doubt anthropometric observations could demonstrate. Unsanitary surroundings and overcrowding are prolific causes of disease in infancy and childhood, and accountable in all the poorer areas of our large towns for a terrible waste of young life, and also for much retardation of growth and many bodily and mental infirmities. Infants and children rarely pass altogether scatheless through a disease, though the vestiges it leaves behind it may not be very conspicuous. With reference to the exanthemata (measles, etc.), we often hear parents congratulate themselves that their children have got over them, but the truth is that children are always better without them, and that in many instances they blemish the life which they do not destroy. To ward off, restrict and abolish them altogether, is the ultimate aim of preventive medicine.—*New York American and Journal.*

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YEAST AS A THERAPEUTIC AGENT.

H. Paschkis (*Wiener Klin. Wochenschr.*, 1902, No. 31).—The writer is convinced that both brewer's yeast, as well as the ordinary compressed yeast, are valuable agents in the treatment of furunculosis, acne and severe folliculitis. Although not a specific in the sense in which mercury is a specific for syphilis or quinine for malaria, yeast is still a therapeutic agent of considerable certainty and rapidity of action. No untoward results of any significance have ever followed its administration. It is given in doses of one-half to one teaspoonful in carbonated water, beer or milk.

[Yeast has for some time found a rather widespread use in this country, especially for diabetes. Of late a considerable improvement in its manufacture for medicinal purposes has been effected in Germany. It seems that the active agent is the ferment in the yeast cell: the living yeast cell as such only detracts from the activity of the drug. Moreover, the large amount of water present even in compressed yeast adds unnecessarily to its bulk as a drug. Drying the yeast in vacuo takes out most of the water, but does not kill the cells; drying it at a high temperature does both, but also (at least in part) destroys the ferment. The new process consists in treating the yeast with acetone and then driving off the latter. The resulting so-called acetone yeast is a light, dry powder, free from living yeast-cells, and, as regards its fermentative power, very much stronger than compressed yeast. If there is anything in yeast medication, this form would seem to promise more than any other. It has not yet been put on the American market.]

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A WHISKY DISCOMFITURE.

A correspondent reports a somewhat amusing sequel to a dinner at the Hotel Metropole. A Scotsman overheard two Englishman sitting near him extolling the merits of whisky, and the conversation included the recent story of the Edinburgh professor who was, by the use of the mountain dew, able to walk 40 miles a day and was now in splendid health. The Scotchman had been prohibited by his doctor from touching whisky under any circumstances, but on hearing the experience of the Edinburgh man he felt almost as much exhilarated as he used to be under the glow of alcohol. He fancied he had got the doctor into a corner, and next day, in high feather, proceeded to Harley street, that happy hunting-ground of physicians. It so happened that the medical authority had just read the story about the "40 miles walk every day," and, after listening to his patient, he explained to him that the Edinburgh professor had put the whisky into the heels of his boots. "Oh!" replied the Scotchman, "that's a clean different maitter athigither."

* * *

Dr. R. B. Granger, for many years managing editor of the *New York Medical Journal*, has become associated with the medical publishing house of W. B. Saunders & Company, of Philadelphia, as its representative in New York City. A fine set of offices has been opened in the Fuller Building, at the junction of Fifth avenue, Twenty-third street, and Broadway, where the genial doctor will be happy to receive all who will honor him by calling.

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, MAY, 1903

VICTIMS OF INANITION.

It is no longer held that germs are the primary and only cause of tubercular and other forms of wasting diseases. Lapses from normal vital conditions, hereditary tendencies, imperfect recovery from exhausting discharges or diseases, malassimilation or nonassimilation of food,—all these and other incidental conditions are to be taken into the account. Of a hundred persons simultaneously and equally exposed to the infection perhaps only one will contract the disease. Why? Unquestionably because the hundredth man has either inherited or acquired a susceptibity.

It is now quite generally conceded that acquired susceptibility is almost invariably a resultant of inanition, and this is essentially innutrition. Not that the victims of wasting diseases in all or even a majority of cases lack food. But they do lack nutrition. This proves that food and nourishment are not synonymous terms.

Antedating the germs and their destructive multiplication there must be a certain and considerable degree of constitutional degeneracy and vital deterioration. Without this it is impossible for the bacilli to find lodgment or conditions favorable to their growth and devastating, tissue-destroying operations.

Inanition is another name for innutrition—starvation; which is to say that patients who die of inanition, no matter how much food they consume, *starve to death.*

It does not follow that patients suffering from inanition are not fed; but it does mean that they are not nourished. The food with which they are plied, no matter how liberally, may be abundantly rich in nutritive elements exactly adapted to their condition, if estimated from a chemical standpoint. But those elements are not always presented in an eligible or available form.

This is the secret of much clinical disappointment.

Available statistics show that consumption is more prevalent among those who can not command the best food in sufficient quantity for the needs of their systems; but on the other hand, the rich and well-to-do furnish their quota of fatal cases, because their less rugged and more artificial and hence less wholesome ways of living lessen their inherent powers of vital resistance. What is termed "culture" is too often made the counterpart and antagonist of immunity. Some French authority insists that the race is dying of civilization.

Because of an inability to assimilate and appropriate it is quite possible to starve in the midst of a surfeit, to gorge on the fat of the land, and yet go into vital bankruptcy.

The secret of therapeutic success in these cases lies in a solution of the problem of how to induce the debilitated and declining organism to absorb and appropriate the elements needed for its restoration and reconstruction. Scores of substances contain the proper chemical elements, but they are not available.

In abnormal conditions of the system food must possess supernormal properties. Food that may be thoroughly competent under physiological conditions is often incompetent when pathological conditions are present. In other words pathologic conditions call for *therapeutic food.* This fact has long been recognized, and the search for substances and elements that respond to this requirement has been vigorously and constantly prosecuted ever since the art of medicine had its crude beginning.

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THE NATIONAL SPECTER.

Writers on the subject of vital statistics assert that every sixth person in the United States is infected with tuberculosis, and that every seventh death that occurs in any year is caused by the "Great White Plague."

They further assert that if careful investigation was made and necropsies performed at least one-third of those reported as dying of other diseases would show cicatrizations and other unmistakable evidences of former tubercular infection, although nothing of the kind had been suspected during life. In these unsuspected cases spontaneous recovery had taken place, some intercurrent affection carrying off the patient.

This furnishes the pathologist, and the therapeutist as well, food for serious reflection and occasion for careful study.

It may be considered unquestionable proof of at least three things: 1. That consumption is one of the commonest ailments. 2. That spontaneous recovery frequently occurs. 3. That this fatal scourge is amenable to treatment.

To the standing army of tubercle-stricken invalids—estimated by the foregoing authorities at over 12,000,000 in this country alone,—the lesson is sufficiently obvious, and the warning ought to be timely, ample and unmistakable.

The incisive and important lesson now being loudly dinned into the ears of medical men everywhere is that a large majority of the fatal cases can be cured by opportune treatment, and that all successful treatment has come to be based on better nutrition, since the disease is essentially if not invariably closely allied with innutrition or malnutrition.

Furthermore, it is a consensus of medical opinion that there are no known drug specifics, and that the hope of ever discovering such is too remote to be considered.

In view of these admitted facts the time spent in parleying with the venders of alleged specifics, and in the investigation or trial of "Great Discoveries," is unspeakably worse than wasted since it beguiles the sufferer so that he drifts along in fancied but false security, until in many cases the curable stage has forever passed, after which nothing short of a miracle can be of any avail.

A list of the items comprising the physiological status of the incipient consumptive would include the following:

1. He possesses a highly susceptible organization.

2. He is usually surrounded by an unfavorable environment.

3. His vital stamina has been impaired.

4. His digestion and assimilation are imperfectly performed.

5. He is losing weight,—using up his tissues, his vital reserves.

6. The lowered tone of his tissues renders them incompetent to resist the approach of or contact with infectious germs, to which all mortals are constantly exposed.

It is only in the presence of one or more or all of these conditions that the bacilli find lodgment and suitable nidus in which to multiply and accomplish their destructive work.

In view of the pathologic, etiologic and therapeutic advances of the past quarter of a century the indications for rational treatment are these:

(*a*) To place the patient in a more favorable environment.

(*b*) To arrest retrograde and establish reconstructive metabolism.

(*c*) To restore the vital stamina to its normal status.

To accomplish these conditions or objects without loss of time all natural therapeutic resources must be drawn upon.

Diet, hygiene, sanitation and exercise are all essential, but in immediate importance *Diet* overshadows all the rest.

JOURNEYING TO NATURE.*

In the multitude of new books each clamoring to find its place among the half-dozen "best sellers" and "most sought" in the libraries, it is refreshing to happen upon one which is so full of healthful inspiration and spiritual uplifting, without the remotest attempt at didactics or dogmatism, as is a volume by "J. P. Mowbray," entitled "A Journey to Nature." It is crammed full of wholesome hints to doctors as well as laymen and is charmingly written.

There is nothing in its pages, except its racy, pungent and inimitable style to tell us that "J. P. Mowbray" is another *nom de plume* of our whilom dramatic critic, genial feuilletonist, and philosopher, *"Nym Crinkle,"* whose real name was Wheeler, and whose sudden demise a few weeks since occasioned the insertion of some very appreciative paragraphs in the morning papers.

We extract some disjointed fragments gathered from the author's own descriptions and comments and from the brusque and abrupt psycho-pathologic philosophy he attributes to the iconoclastic doctor who sent him from the whirl of Wall Street to the unwinding of the wilderness:

Chapter I is labeled "Scared to Life," and starts off with,

"To pass suddenly out of the very tempest and agony of life into the dead calm of another existence,"—which now reads like a verified prophecy,—"to stop all the rioting faculties at full speed and go quietly away to vegetating dreams, is an experience that not many men have had, and the recital of it may not be without interpretative edification to some of my fellows.

"I went out for a year. I cut my species dead and departed this life as absolutely as was possible for a man to do without severing an artery or blowing his brains out.

"One day I was coming out of the Stock Exchange when that maelstrom was in full race and when I was in a sort of concentrated paroxysm of suspense,—I got a warning. It was like a stroke of lightning.

"I was not physiologically expert enough to know what had happened, but I readily fitted a current phrase to it. Heart failure, I said.

"I saw the Secretary mounting the rostrum in the Exchange; there was a momentary hush; all hats came off, and I heard my name called. It was coupled with the word 'suddenly.' Then back went the hats again, the roar began, and I was disposed of.

"However, the mysterious organ, of which I had hitherto been profoundly ignorant, made a spasmodic jump or two, and concluded to resume business. I found myself in my office—replying to the startled girl who asked me if anybody was dead, 'Yes, I am.'

"Then I was rattling up Broadway in a cab, saying to myself with consummate imbecility, 'Keep cool, for heaven's sake—don't excite yourself.' When the dear old Doctor's knuckles struck my door and he pushed it open, I was walking the floor smoking. whereupon he threw his cane upon the table recklessly, and drawing up his portly form, said:—

"'Well, confound your urgent impudence; I expected to find you breathing your last.'

"'Perhaps I am, Doctor,' I said. 'I had an attack on the street of heart failure. I want instant advice?'

"'Heart failure?' he shouted. 'Is that all? Confound you; I thought you had the influenza. Suppose you open that window. I'll have heart failure myself if I breathe this atmosphere.'

"'Do you think it would be safe for me in my present condition?'

"'Not only safe, but preferable.'

"I opened the sash. It was an early spring afternoon, and the sound of a newsboy's voice came mellowed by the distance, as if from a world I had left behind. He was calling a late edition.

"I described my condition as well as I could and presently I was under his professional manipulation. He called it taking a look at my assets—hardly thought I could make an assignment, and various cheerful remarks of that kind, while his cool thumb and finger were poking about, and his warm ear was trying to catch what he called the crack of doom.

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*Copyright, 1902. Courtesy of Doubleday, Page & Co.

"'You've a lively lot of boys down there on the street. Your mother's alive yet, I believe?'

"'Yes.'

"'How old is she?'

"'Seventy-six.'

"'How old was your father when he died?'

"'Seventy-four. Come to the point, Doctor. What chance have I got?'

"'Well, my boy, it's a toss up whether you live to be seventy-five or drop dead within six months.'

"I felt a nerve in my face twitch, and he went on.

"'It isn't every one who has the privilege of going down bow first, all sails set, at full speed, without committing suicide.'

"I asked him plainly if he could help my chances.

"'No,' he said bluntly. 'It would be an impertinence for me to disturb the intimacy which you have established with sudden death. Besides, mortuary neatness and despatch have been very much maligned. Some men are meant to live right up to the stopping point, take all there is of life, and then exit quickly and quietly without any fuss. It's quite characteristic of the business man of our era. It's what somebody has called eliminating the corporeal superfluities?'

"'Then I am liable to die at any moment, Doctor?'

"'Why, of course. But you needn't preen yourself. It's a very common privilege in Wall Street. You prefer it, don't you? I've seen a good deal of dying, and I must say that as a rule most of the attempts are tiresome bites at a cherry.'

"'Doctor,' I said, 'you will pardon me, I don't quite take your view of it. I prefer to linger and suffer a little. I sent for you because you are a doctor and not a philosopher. What can you do for me?'

"'Nothing, except to give the undertaker a clean bill of voluntary *felo de se*. There's only one thing will save you.'

"'Ah, what is that?'

"'A miracle.'

"'Good heavens, Doctor!'

"'Yes, sir. Perhaps you have heard the dynamic asses of this world say that a man cannot lift himself by his own waistband out of an early grave. Where's that boy of yours?'

"'He's at school.'

"'School at seven! Atrocious! So, you had to smash him, too? Great Scott—that fine little fellow handed over to orphanage to accommodate Wall Street!'

"'Oh, you mistake. I am working for his future.'

"'By destroying your own. That's the devil's logic.'

"The Doctor had cuffed me professionally. When he went away I began to resent it.

"A man does not suddenly resolve to become meditative in a mob. I would slack up for a few days and then go at it more guardedly. This in effect was—to use Wendell Phillips's phrase—a weak determination not to commit suicide, but to jump only half way down Niagara.

"It was as if the Doctor had left his scalpel sticking in my soul.

"'Where is that boy,' kept tolling in me like a deep, questioning bell.

"I took him away in spite of protests, and when the matron asked me with an utterly unanswerable superiority what I was going to do with him, I crushed her with a bravado that could only come out of Wall Street, 'We are going to play pinochle,' I said.

"He and I had the flat to ourselves that night. I never had so much fun in my life. They must have heard us on the floor below and wondered. After he had said his prayers in his nightgown, he asked me if I wasn't going to say mine, and I think I blushed. Just before he went to sleep he put his arm over softly to see if I was there.

"'Papa, are you going away in the morning?'

"I turned over, kissed him on the cheek, and with that utter imbecility that is pristine, I said, 'Charlie, if you love me as I love you, no knife can cut our love in two!'"

Then the two hie them to a woodsy wilderness.

"One morning in late May we found ourselves with our bridges burned, standing with a yellow dog in front of a weather-beaten hut one hundred miles from Wall Street.

"I asked the two men who had driven us and the boxes up where I could get some ice and a lemon. They looked at each other as if I had asked them for a French menu. 'Ice?' said one of them. 'You might git some at the butcher's in Spelldown. It's four miles and a half. There's a spring in the medder yonder, but the lemon crop ain't very good this year.'

"'That's so,' said his companion, wiping his face with his shirtsleeves, 'the potato bugs hurt the young lemons awfully last season.'

"I learned sooner or later that this kind of irony was in the air, like the smell of the skunk cabbage.

"After a week of it I appealed to the Doctor by mail. 'What am I going to do to occupy my mind?'

"'Don't occupy it,' he wrote back. 'What did you climb out of the cerebral malestrom for? Stop thinking for a while. Play. Become an animal—and watch Charlie.'

"'Is thy servant then a dog?' I inquired.

"'Yes,' he replied, 'or some other ignoble animal. Perhaps Wall Street has inoculated you with the notion that you belong to the mineral or vegetable kingdom. You are indubitably and necessarily half animal. Take my advice, stay in your kennel and wag your tail.'

"My doctor having succeeded in exiling me and my eight-year-old heir to what he called 'the recuperative wilderness,' sent me occasionally a tart reminder of the wholesomeness and beauty of the process I was undergoing.

"'Isolation,' he wrote me, 'is the balm of life, and it is better for the constitution than the spice of variety. If I had the power I would provide unpadded cells for society and shove the gayest of its votaries into them regularly, and turn the key on them, merely to increase the average of human life. I am more and more convinced that the Frenchman was right who said that progress is a disease, and eventually society will die of civilization. It is fast losing the power and the privilege of taking breath. The path to heaven is choked with late dinners, and we are forgetting the route.' (The old pirate, I'll wager he was writing this in his dress coat, while the coupé was waiting to take him to a banquet.) 'I have tried my best to introduce a few of my gifted patients to their own economies, but they hadn't time to know themselves. They live in a magnetic bath, and would die of ennui if they did not feel the shock of things going by. They are converting themselves into mere conduits. You are the first fellow I have met who, coming suddenly on his own grave yawning before him, had the pluck to say, "No, thank you," and walk off in another direction. Bully for you.'"

"It was by such artful ticklings of my pride that the old ruffian got me to wear my chains with a sense of heroism. I begged for some news very much as a morphine patient begs for his drug.

"'News,' he replied, 'there's nothing new in the news. Everything seethes and moils and jostles just as it did when you were here. Men are running over each other ruthlessly, and dropping out of sight as usual. I don't know whether you remember Calhoun—he snapped his E string at concert pitch last week. He is pretty well forgotten by this time. He was so loaded with the events of the universe that his mind snapped. He was one of the modern idiots who try to play the rôle of Atlas with nothing but their sensibilities. Becky Moultrie you knew. She sent for me last week; said she had a stitch in her side—would I drop in between twelve and one. Her lunch time was the only opportunity she could spare me. "I haven't time to be sick," she wrote me; "I've got to preside at the meeting to-morrow, and my time is all laid out for next week." It was three days before I called, for I had something more important than a stitch in the side to look after. But she was a woman of neatness and despatch. When I got there, she was laid out—the flowers were coming when I arrived. This universe of ours is constructed on the stop-over plan, and there is no use kicking against it. This through-train business doesn't at all agree with the tropical swing of things, which provides cloisters and still nights for forgetting. By Jove, old fellow, there wouldn't have been any Renaissance if there hadn't been Dark Ages first, and there wouldn't have been any Pilgrim's Progress if somebody hadn't impounded Bunyan. I have never read it, but I understand it's a great work. Go to, every man can be his own Buddha, inasmuch as he has a Bo-tree in his soul—if he will only sit down under it at times and be mum and get acquainted with himself.'

"How to get on comfortable terms with yourself when you are alone. This is where the Doctor's 'Charlie Philosophy,' as I called it, came in.

" 'The best way to contemplate yourself,' he wrote to me, 'both medicinally and morally, is through parentage. If a man would see himself through a crystal lens, let him become the father of a boy. This is the answer to that vain prayer of experience—Oh, that I could live my life over again. You are living it over again. Watch it. While you have been throwing life away like a heap of faggots, it has been budding. It is given to every father of a boy to be his own incubus or his own good angel. If you will only listen to your primitive self, you will hear a Memnonian voice as of Nature herself. It is saying: "It is better to have one woman who believes you are the greatest man in the world, and who presents you with a boy who agrees with her, than it is to be the greatest man in the world." Now is your time, old fellow. Take yourself by the hand, let yourself climb upon your knees and enfold you in protective innocence and reproach you with warm kisses. There is a millennial, believe me, for you will have gotten rid of your carnivorous egotism and will lie down with the lamb.'

"Literally to renew one's youth, according to the Doctor's prescription, turned out to be a series of gracious surprises. With Charlie's hand in mine, I walked into some mysteries that gladly turned into revelations. We took up with some toys in our imaginations, and let the real fairies into our experiences, so that little curtains were lifted all round us on worlds unrealized."

But we must desist, and leave something to be read from the volume.

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THE OPPENHEIMER INSTITUTE.

After the much advertising and successful charlatanry of the bogus "gold" cures and large-titled "Retreats" for the cure of alcoholism and other addictions, it is a great satisfaction to note the organization of an institution for the scientific treatment of these unfortunates on a basis that will command professional countenance and the respect of the community. The Oppenheimer Institute is thus based, and we take pleasure and satisfaction in seconding its effort by thus calling attention to its announcement.

This institution is backed by some of the most highly respected and influential citizens, men whose names are not only well known but are also a guaranty of the legitimacy and respectability of the institution they have helped to endow.

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

MENTAL HYGIENE.

By George H. Taylor, M.D.

The different states of the mind, whether in its departments of thought or feeling, are well known to exert a powerful influence upon the physiological manifestations, but unfortunately the consideration of these relations has been too generally left to a class of writers whose aim is to astonish and amuse rather than to effect any practical good by their disquisitions.

We hear it constantly asserted by invalids that some peculiar mental trouble, disappointment, or excitement of feeling was the original cause of their ill health; but how very few think of looking for relief, or are led to look for it, in a restoration of order and harmony to the disturbed mind. How few seem to know that the forces that exercise such potent control over the organism for the production of disease may be made equally available for the restoration of health. The ordinary practice of medicine inculcates the notion that the business of the physician is simply to endeavor to supply and regulate certain material conditions, by means of pill and powder, and that when that is accomplished, all has been done that lies within the limits of human ability.

The truth is, the influence of the mind over the body is equally great in health and in disease. No thoughtful observer can doubt this. We all know that voluntary muscular action gives language to our ideas, and that no part of the frame-work of the body is exempt from the duties of aiding in the performance of this interesting and wonderful function. The passions, especially, put into requisition the action of almost every muscle of the body for their expression. Says a German writer: "Who is unacquainted with the sparkling eye, the free respiration, the glowing color and the serene brow of the joyous? Who is not familiar with the trembling aspect, the hesitating utterances, the cold ruffled skin, the bristling hair, the palpitating heart, the impeded respiration, the paleness, the low pulse and the thousand other signs of fear? The slow, oppressed breathing, interrupted by sobs, the cold, pallid, wrinkled skin, the slow tottering gait and the weak pulse of the despairing? The deep broad blush of shame, or the pallor of miserable envy? The beaming countenance of requited love, or the anguished expression of disappointed affection? The spasmodic constriction of throat and chest which accompanies jealousy? The gnawing pain which torments the heart of devilish hate? The storm in the veins of the angry man, his inflamed countenance, his gasping breath, his bounding pulse and wild swollen countenance?" All these external manifestations depend upon certain changes effected among the invisible elements of matter.

Now the extraordinary states into which the system may be thrown soon subside, and are directly succeeded by the ordinary states, and whether the impressions thus made be wholesome or unwholesome, the effects are not necessarily permanent. But if these conditions be continued for any considerable length of time, the consequences must be lasting, for good or ill, and if injurious may even prove fatal. The continued indulgence of malicious feelings by a person will surely so modify all the internal, invisible functional acts of his system as to check and overcome finally its vital power; and thus any latent tendencies to chronic diseases will pretty certainly be quickened into active life.

Diseases are often perpetuated, if not produced, by causes over which mere chemical influences can not be presumed to exercise any control. This fact may be, often is, tacitly acknowledged by the physician, but he declines to investigate their relations so as to be able to turn them to useful account. He seems unwilling to acknowledge in practice, though he may admit confidentially, that the headache, the nervousness, the heart distress, or the dyspeptic qualms which he is called upon to remedy, are only indications of some peculiar morbid state of the mind, or of the emotional nature of the sufferer, which it becomes him to meet directly, rather than by an eternal round of palliatives. In such cases every medical prescription must be totally irrelevant, though written in the best Latin. What fatal mistakes may not result when *stimuli* are substituted for *encouragement,* and *physic* for rational *ideas;* when the invalid is advised to try the resources of an inexhaustible pharmacy instead of bringing common sense to a controlling sway in the organism. The physician can afford no longer to devote his attention exclusively to the superficial and deceptive signs of disease, nor to ignore the fact that the body is but the incarnate expression of the interior, invisible, imperishable spirit, which is the man.

We can not get rid of the sequences of the important fact that, in the human organism, spirit governs matter, by brutishly ignoring it, nor can we innocently treat it as an unimportant matter. Science, like true religion, is learning every day to live more by faith and less by sight.

The jests that used to be hurled at the defenseless head of the practitioner who dared to suggest that the thoughts and feelings and mental habits of the invalid might need rectifying, as well as his bile and blood, are fast losing their point. We are all beginning to suspect that, perhaps, after all, a disease may not be the less a disease because its source happens to lie in an unruly imagination, or in excessive activity, or wrong modes of thought. And gradually—very slowly to be sure—yet really, we think, the people are waking up to the conviction that these intangible causes are not irremediable. They are beginning to see and understand that by this close union and co-operation of the material and immaterial natures, remedial agents may possibly find access to either or both through avenues that otherwise could have no existence. We have faith to believe that the time is near at hand when the mental aspects and relations of disease will receive an amount of attention equal to that which has always been given to the pulse and tongue, the temperature of the skin and color and consistence of the excretions.

Blessed will be the day when science shall purge her soul of the dishonor of leaving this interesting and vital subject to ignorance and charlatanry. But even the devil should have his due. As much as we detest quackery, it can not be denied that many quacks meet with a success in the treatment of some diseases that would be very puzzling if we could not refer it in great measure to the mental control they contrive to exert over their patients. In this respect, the pretender has a positive and oftentimes an immense advantage over the real man of science. He stimulates his patient's imagination, awakens his hope, gains his confidence, whereby the perturbed mind is restored to a condition of tranquillity and thus a state of the system is induced most conducive to that spontaneous restoration of its harmony and power which is often mistaken for the effect of medicine.

A wholesome co-operation of the mental, emotional and material forces of the invalid is indeed the grand desideratum. Every one knows what benefit is frequently derived from a simple change of doctors; this benefit is generally much greater than the difference in the course of treatment will account for. We all know how salutary are the influences of cheerful society, change of scene and exciting incidents in some conditions of the system. It is very strange that the abundant experiences of men in this direction should not long ago have convinced them of the existence of a principle so important and fundamental.

We believe that, while some benefit may be derived from discussion of this great question in the enlightenment of the public mind, no extensive practical advantage will be reaped until these principles are taught in our schools and incorporated into our medical science. The mind itself must be regarded as an available force capable of being aroused and managed in such a manner as effectually to oppose the tendencies of the body toward disease.

It should be understood that the efforts of the physician must be seconded by the patient, and that this concurrence must not be faint and faltering, but determined and earnest. If his energies, or what remains of them, can be thus enlisted in his own behalf, the victory is already half gained. The only hopeless invalid is he who has no resolution—in whose soul faith and courage have utterly died out.

A man may bestow the greatest care upon what he eats and drinks; may regulate ever so nicely his periods of exercise and repose; learn by heart whole treatises on the art of living long; reflect profoundly on the relation of his feelings, his will, and his thoughts to his general well-being. But more than this is demanded of him; he must learn to govern, as well as to know himself.

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DIAGNOSIS BY EXCLUSION.

"There is nothing the matter with you," persisted the Eddyite, "absolutely nothing. Can I not convince you?" "Let me ask you a question," replied the sick man. "A thousand, if you like." "Well, suppose a man has nothing the matter with him, and he dies with it, what didn't he have the matter with him?"—*Philadelphia Press.*

THE TENDER PASSION.

The question, What would the world do without the sentiment that we call love? would furnish an exceedingly interesting subject for debate.

The world without lovers would be to many people little more than a dreary waste. Upon this passion the greater part of the romance and poetry of life depends. It might be that after years of effort love could be bred out of our daily life, but with it would go a great deal of the leaf and blossom of existence. When we take into consideration what an important factor this is in all our coming and going, and how much depends upon its proper directing, we can but wonder why it is that almost all parents and guardians sneer at it, ridicule it, and treat it like an unholy thing. It certainly seems that their experiences must have been bitter ones, else they would not so persistently seek to crush out from the hearts of their children the sweetest sentiment that ever smoothed and brightened a rough and sorrowful pathway. If, instead of determinedly belittling this feeling, instead of making the lover appear like a culprit, parents had the sense and discretion to teach in their families, by example and precept, the practical working and the philosophy of love, the world would be very much the better for it.

COURTSHIPS

would not then be carried on clandestinely, and those who are engaged in them would not indulge in feelings of shame or terror, as the case might be, if they were found out. Many a woman's life has been wrecked because her parents laughed at and made ridiculous the man on whom she had set her heart. Nothing hurts so badly as this. Other pains of life fade into insignificance by the side of the overwhelming grief felt by unsophisticated and trusting girls or boys when they find that the object of their affection is known, and that they are compelled to go through that awful ordeal of quizzing, cross-questioning, laughter, and teasing that accompanies such experiences.

What is true of the very young is equally true of people all through life. If a young man who has remained single for some time devotes himself to some young woman of his acquaintance, there are sly looks, insinuations, and jokes, more or less refined, as the case and the persons may be, all of which tends to make the victim as uncomfortable as possible, and may end, if the poor fellow is supersensitive, in breaking the affair up altogether.

There is nothing that comes into our lives so sweet and so sacred as genuinely spontaneous affection. It is the embodiment of unselfishness and a type of the glories of the blessed.

THERE IS LITTLE WONDER

considering the flippant and disrespectful way in which this subject is treated, that men and women are given to inconstancy and trifling. All of the reverence and sacredness were long ago sapped from this passion, as far as their thoughts and feelings are concerned. When we take into account the fact that on deep and abiding love depend the home sentiment, the formation of the family, the fidelity of the contracting parties, and the best inheritance and training for the children, it would seem that it rests as a heavy moral obligation on parents and teachers, as well as on the clergy at large, to teach and preach the purity and sweetness of that love that makes men and women unselfish enough to think the treasures of the world well lost so that they gain and hold the affections of the beloved object.

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IN MONARCHS' KITCHENS.

CULINARY REGIME BELOW STAIRS IN MANY ROYAL PALACES.

The German Emperor is disposed to be rather officious in the supervision of his kitchen. He has been known to make a special tour of inspection, under the guidance of a marshal of the court, and to harangue the scullions, or give them lessons in the art of making coffee. As a rule he gets his meals *en pension*, there being a regular sum alotted a head for the board of the imperial family, and within these limits the cooks have a free hand. The chief cook is a German, and under him are a German and a Frenchman, although the use of the French language on the menus is strictly forbidden. The chef has to get through about four hundredweight of butcher's meat on ordinary days for the meals of the court, and on great occasions he usually begins his preparations a week beforehand, and calls in the services of the cooks at the other palaces, besides utilizing the services of the dainty confectioners in Unter den Linden. William II believes in dishes *en masse*. The joints appear in the dining saloon, and the cakes are frequently fashioned into the shape of temples, minarets and castles.

The chef in the household of the Czar is an Alsatian, an ex-soldier, who is paid a very high salary. He is an adept in the fabrication of appetizing Russian soups, which are much liked by Nicholas II, and he has a regular dictionary of recipes for the treatment of caviare. He has had to overcome the nuisance of having two or three Circassians always hovering about the kitchen on the lookout for suspicious underlings, although these gentry apply themselves to the task of tasting the imperial viands with greater zeal than the occasion demands. The Empress often conveys to the kitchen a wish for a dainty dish to be prepared *à l'Anglais*, and apart from the national dishes the composition of the imperial menu *en famille* is as much English as French. The Emperor Francis Joseph is said to spend £50,000 a year upon his table, although he himself is one of the most abstemious monarchs in Europe. The staff consists of half a hundred trained cooks, equally divided as to sex, and a committee of the heads of each department is held on the occasion of a state banquet. All the carving is done in an apartment reserved for the purpose, to which the comestibles are conveyed from the kitchen. The custom of perquisites is probably more firmly established in the Austrian imperial kitchen than anywhere else in royal Europe.

At some of the smaller courts native chefs are preferred, as, for example, in Rome, Madrid and Stockholm. At the Sublime Porte Abdul Hamid formerly contented himself with French chefs, but after the visit of the German Emperor to Constantinople he engaged three German cooks, who assist him in dispensing the enormous daily sum of £1,000 upon the pleasures of the table for his vast establishment. All the Sultan's personal dishes are prepared in silver vessels, and are sealed by the grand vizier before they leave the kitchen. The seal is broken in the presence of the monarch, and it is the duty of the chamberlain to taste the first mouthful if so commanded. The decoration of a chef by his royal master is a rare event; even the Royal Victorian Order was not considered by her late majesty to be a suitable method of acknowledging the services of her culinary artists. When a famous chef retired from the service of the imperial kitchen in Berlin he was rewarded by the Empress with the Gold Cross of Merit, but even in the Fatherland this distinction was unique. Perhaps the most curious kitchen department in any imperial palace in the world is that of the Emperor of China. The staff consists of no fewer than 76 experts, whose duties require them to be acquainted with the daintiest methods of serving up bears' paws or antelope tails, eels' eggs, or monkeys' lips, while there is a special department which concerns itself with the serious task of producing birdsnest soup—*Cassell's Saturday Journal.*

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ZOLA, NEUROPATH.

From *The London Chronicle.*

ZOLA, who used his pen on others as a dissecting knife, submitted himself, some years ago, to a detailed medical examination in the general interests of anthropolgy, frankly recognizing the fact that Max Nordau saw in him an excellent illustration of his theory of the connection between genius and degeneracy. Not all those observations nor his own answers to questions about himself were published during his life, but there is now no need for reticence.

He had a wrinkled forehead when he was six; he had "morbid ideas" until he was thirty-five; and then, when success came in at the door, they escaped by the window. With his intellectual power went a lack of nervous equilibrium; and though he had a strong will and tenacity of purpose, he had feeble powers of concentration and attention, and in later years an uncertain memory. He had bad sight, and no ear for music. The French experts who examined him gave their verdict in a word—he was a "neuropath."

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SECOND SIGHT.

ABOUT the year 1725, the marvellous history of a Portuguese woman set the whole world of science into confusion, as will be found by referring to the "Mercure de France." This female was said to possess the gift of discovering treasures. Without any other aid than the keen penetration of her eyes, she was able to distinguish the different strata of earth, and pronounce unerringly upon the utmost distances at a single glance. Her eye penetrated through every substance, even the human body; and she could discern the mechanism, and circulation of all animal fluids, and detect latent diseases; although less skilful than the animal magnetisers, since she did not affect to point out infallible remedies. Ladies could learn from her the sex of their forthcoming progeny.

The King of Portugal, greatly at a loss for water in his newly built palace, consulted her; and after a glance at the spot, she pointed out an abundant spring, upon which his majesty rewarded her with a pension, the Order of Christ, and a patent of nobility.

In the exercise of her miraculous powers, certain preliminaries were indispensable. She was obliged to observe a rigid fast; indigestion, or the most trifling derangement of the stomach, suspending the marvellous powers of her visual organs.

The men of science of the day were, of course, confounded by such prodigies. But instead of questioning the women, they consulted the works of their predecessors; not forgetting the inevitable Aristotle. By dint of much research, they found a letter from Huygens asserting that there was a prisoner of war at Antwerp, who could see through stuffs of the thickest texture provided they were not red. The wonderful man was cited in confirmation of the wonderful woman, and *vice versa*.

* *

THE FEEDING OF THE BABY.

If all babies were exactly alike, the problem of feeding them would lose its uncertainties and terrors, writes Helen Hatmaker Klein in *Good Housekeeping*. But they differ very greatly in their requirments, and it is impossible to formulate exact rules as to what, how much, and how often they should be fed. These questions must be settled in each case by observation of the child, and it must be remembered that the statements of careful writers on these points are intended as suggestions rather than definite rules.

Improper feeding, unfortunately, does not always show immediate bad effects. Nature condones, but sooner or later metes out full measure of punishment. Many children seem to thrive on pastry and sweets, growing faster than those who are more carefully fed. If they are poor sleepers, their mother thinks their restlessness is caused by teething. If they are irritable, she attributes the irritability to original sin or malaria. If they are very sick when they have the measles, and are not "themselves" again for many weary weeks, she either concludes that she has "bad luck," or reasons that as they caught it from Mary Smith, who had a slight attack, they must of necessity have a serious siege. She has always heard that alternate cases were severe. As she has no data to show how much more healthy her children might have been, had they been correctly fed, she does not suspect that their diet may be the cause of all these trials.

The best nourishment for a young baby is mother's milk, and happy is the mother who can supply it. The food problem is then practically settled for several months, and the maternal heart can rest comfortably in the knowledge that she is giving her little one the nourishment that nature intended. It is important that she have good health while nursing the baby. She must not be worn out by domestic nor social cares, and she must have plenty of rest and fresh air. Her diet must be abundant and varied. If she finds she has not enough milk to satisfy the child the deficiency may be corrected by free use of meat broths, cocoa and milk.

* *

THE VACUUM PROCESS OF CLEANING CARPETS, RUGS AND FURNITURE.

We are indebted to the *Chicago Bulletin* (Health Department) for the following bit of encouraging news for sanitarians and house-cleaners:

The hygienic housewife—and every good housekeeper is a practical sanitarian—will welcome the new process of "cleaning by vacuum," described in a recent issue of the *London Lancet* (Feb. 14, 1903). Instead of the old-fashioned dust-raising broom and the dust-scattering feather duster, or the more modern compressed air method—by neither of which are dust and dirt finally disposed of, but only dislodged from their settling places to be scattered to others—all dust, and the disease germs which it contains, is "sucked" out of carpets, rugs, curtains, tapestries, etc., and conveyed through rubber tubes to an exhaust cylinder, whence it is emptied into the furnace for complete destruction.

As described by the *Lancet*, the process is simple enough, and indeed such that it is a little surprising that it has not been suggested and applied before. When "spring cleaning" is to be done a machine is sent to the house provided with a pair of vacuum pumps, operated by an oil or electric motor, which serve to maintain an "exhaust" of several pounds to the square inch. Varying lengths of hose are connected with this "exhaust" and terminate in so-called "cleaners" or "renovators," which consist of tubes flattened out at the end into a long slit. The "renovator" is rubbed up and down over the carpet or the cloth coverings of chairs or seats, from which it rapidly sucks out all the dust. "The result is quite remarkable." The dust is extracted not only from the surface but from the body of the carpet also, so that at the end of the process not the slightest appearance of dirt can be detected on beating the material.

Carpets need not be taken up and need not be sent away, nor curtains, furniture or bedding, and the whole operation in a ten-room house need not occupy more than eight hours, the time taken depending upon the amount of dirt it is possible to remove and upon the nature of the furniture. It is as remarkable as it is important from a sanitary point of view that during this process dust or dirt is not raised in the room, for exhaustion is proceeding the whole time; the air of the room is constantly being changed, and it is found when the cleaning process is over that the shelves, the mantelpiece, or the cover of the piano is free from all signs of deposited dust. In a simlar way the dust may be removed from the walls by means of a special cleaner, which consists of a brush of horseshoe shape provided with an exhaust tube in the center.

It is not, however, in the amelioration of the discomforts of the spring cleaning that this new method finds greatest favor in the mind of the sanitary official. Its use in the sick room, especially in the contagious diseases, must prove of vastly greater importance. Consumption, pneumonia, influenza, scarlet fever and similar diseases are known to be spread by the infected dust of the sick room, and columns have been written urging that in the cleaning of living rooms, whether occupied by the sick or the well—but much more so by the sick—the distinct and recognized purpose of the operation shall be to remove and not simply to stir up the ever-gathering dust. For years this has been recognized as an essential feature of all efforts toward the restriction of consumption, and the department is glad to know that through its efforts steps are already being taken to introduce the method of "cleaning by vacuum" into Chicago.

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MARY ANDERSON'S CHICKENS.

It seems a far cry from Mary Anderson's splendid performance in Pygmalion and Galatea to the feeding of chickens, but this beautiful woman seems to have solved the riddle of perfect happiness; the eyes that were wells of sadness across the footlights are now radiant with simple happiness. From a life of intense excitement, filled with glitter and action, this deep-souled woman slipped into an existence of such passive tranquillity that one can only marvel. The adoring public that knew her on the stage still cherishes beautiful memory of her charms, her loveliness, and the purity of her life has always been an example.

Her home at Broadway, England, is charming. It is simple, yet all the luxuries of life are there, for as an actress Mrs. Navarro made a fortune. Her voice has been under constant training since her retirement, but only for the pleasure of her friends or for charity, although it is of so rich and beautiful a quality that she might well venture upon a musical career did she so choose. She shrinks from any thought of again appearing in public, her home and her charities being sufficient to fill her life to its utmost.

Her chicken raising has proven a delight, and she spends hours feeding and attending the fowls. It is her pride to take the entire care of them. She does not go in for particularly fancy breeding, but all her hens and cocks are of good breeds, of which there are several. She has had arranged after her own design some ideal chicken runs and houses with wire netting, the houses being of matched polished boards without paint. She has now several hundred hens and chickens, all in superb condition because of the perfect care that is given them by their beautiful owner.

Mrs. Navarro does not sell her chickens nor her eggs, but after her own table has been supplied and her friends have been generously remembered, she distributes the remainder among the poor people of Broadway, over whom she has an eye of charity in all ways. It is esteemed a great privilege to receive one of Mary Anderson's plump chickens for the table, or some of her fresh eggs.

She has never for a moment regretted the giving up of her dramatic career, and never speaks of it. She very rarely attends the theater, for her life is full of simpler things. Every one in the village of Broadway loves the beautiful woman.—*Good Housekeeping.*

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REVOLUTION IN THE PANTRY.

THERE is nothing cheering to the public in the report of the Secretary of the National Dairy Association that the manufacture of oleomargarine had decreased 33 1-3 per cent. in the last year, and that butter had advanced four cents a pound. It was not understood that the servants of the people, in legislative conclave assembled, should pass a law that would cause the people to pay four cents more a pound for butter, but that the law should make it possible to make more butter, so that everybody might have butter instead of oleomargarine. Yet here we find the butter makers chuckling over the unhappy fact that their customers have had to pay more than before. Still, it is not the four cents that we now so much have cause to fear as the prospective purchase of the entire dairy interests of the country by the packing combine, which has already asked for a price to be set by the owners upon all the plants in New York State. There is a gloomy future before us. Had we been brought up on cotton-seed oleaginous products, we might not now complain; but we sigh for the fleshpots and the butter pats of our youth. Where, oh, where, are the buckwheat cakes of other days, not ballooned upward with a powder; the real honey, not glucosed; or the maple syrup that once actually flowed in Vermont, instead of the sorghum fields of Iowa? The next generation will not mind. They will be raised to the new order of things. But it is melancholy to live in an era that bears a revolution on its back, whether it is a "French Revolution," or a wild, crazy, nomadic overturn of all our gastronomic ideals.—*St. Louis Globe Democrat.*

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RABIES AND ITS GERM.

ACCORDING to *The London Chronicle,* rabies, or "madness," in the dog is, of course, well known as the cause of the ailment of man termed hydrophobia. It is a disease which also affects the wolf, fox, cat, and other animals, and a very serious affection it is. The mortality from it was very great prior to the institution of the Pasteur treatment. This last consists in the inoculation of the patient with graduated strengths of rabbit marrow, obtained from animals which have been treated with rabid material. By this method the nervous system is fortified against the attack of the toxin or poison conveyed by the bite of the dog. When that poison ultimately develops —the interval between the bite and the appearance of symptoms varies greatly — it finds itself forestalled, as it were, by the inoculated material, and the onset of hydrophobia is thus prevented. While little doubt has been entertained that rabies and hydrophobia are due to the presence of a specific germ or microbe, search for the organism has hitherto been unsuccessful. We must all recognize the difficulties which attend research of this nature. The isolation of a microbe, and its identification as the one specific cause of any ailment, is a labor involving much experimentation, extending over a long period of time. Witness in proof of this assertion the laborious investigations which resulted in the discovery of the germ to whose attack diphtheria is due.

From Rome last week came the news of the discovery of the germ of rabies by Dr. Sormani, who is professor of hygiene in the University of Pavia. He is said to have isolated a microbe which, duly tested after the fashion proper to bacteriological science, has afforded proof of its causal relationship to rabies. Of course, this is not the first occasion on which such a discovery has been alleged to have been made, and various microbes have appeared from time to time as likely to represent the true germ of the disease. Dr. Sormandi holds that the difficulty here arises from the fact that the microbe is capable of assuming several forms, a feature well known to be characteristic of certain kinds of these microscopic bodies. According to him, the changes of shape, or rather the special forms the microbe may exhibit, are due to the particular environment in which it is cultivated. As regards its size, it is held to be one of the most minute of microbes, and this is saying much when we are dealing with organisms whose dimensions are measured by the thousandth part of an inch. The discovery of Dr. Sormani will be watched with interest in respect of its further developments.

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ALL GONE.

"Did Johnson's purchase include also the good will of the business?"

"There wasn't any good will to it. It was a coal dealer that Johnson bought out."—*Syracuse Herald.*

STOP PRATING ABOUT INSUSCEPTIBILITY TO VACCINATION.

Chief Medical Inspector of the Chicago Health Department, Dr. Spaulding, forcibly calls attention to the false impression concerning insusceptibility to vaccination held by many persons, and even by some medical men. They argue that because a child has had six or seven attempts at vaccination without its "taking," the child is insusceptible, and often ask permission for such child to go to school without the required certificate. It should be clearly understood that no one is insusceptible to vaccination any more than to smallpox. "One successful vaccination can be secured in every person; *to this, there is no exception.*" Recently, a reputable physician wrote that he and two other physicians had vaccinated his little child seven times without result, and asked the Chicago Health Department for permission to enter the girl at school without certificate, as he believed she was not susceptible. The department advised him to try again with vaccine lymph furnished by the department. He did so, and has since written that child has a typical vaccination,' which insures her immunity from smallpox. If this eighth trial had not been made the story would have gone out that it was a case of insusceptibility—a condition that does not exist—and if she had been subsequently attacked with smallpox it would be claimed that she had been vaccinated, and the case cited by the anti-vaccinists as proof of the inutility of vaccination as a preventive of smallpox.

"A striking and hideous illustration of the evils of teaching insusceptibility to vaccination was furnished during the week in the neighboring town of Hammond, in which a cashier in the bank was stricken with smallpox in its worst form. He died on the seventh day of the attack with hemorrhagic smallpox. He had had four attempts at vaccination, and because 'it did not take,' was told he was insusceptible to vaccination—a bit of medical advice which cost him his life at the age of 33—an utterly needless loss of a life useful to the community and of priceless value to his family. *Stop prating about insusceptibility to vaccination.*"

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THE PARASITIC ORIGIN OF CANCER.

MUCH activity still continues in the unravelling of the mystery which surrounds the etiology of malignant disease. Mr. Roger Williams, in a reprint from "Supplement of Twentieth Century Practice of Medicine," vol. xxi., 1903, has recently supplied a useful summary of the work relating to the parasitic origin of cancer. He shows that malignant tumors are singularly prone to bacterial infection, owing to their feeble vitality, which is often a consequence of defective blood supply. In their young and nascent condition non-ulcerated malignant tumors seem always to be quite free from bacteria. But although many organisms may find a suitable *habitat* in malignant tumors, none of them fulfil the requirements necessary for the establishment of their etiological rôle as true "cancer microbes." And with regard to the influence of protozoa, the evidence in favor of a causal connection with cancer is almost entirely histological, for the results of culture and inoculation experiments have established nothing definite. Certain blastomycetes, it is now generally admitted, are pathogenic for man and animals and may even cause lesions which in their gross features resemble malignant formations, but when carefully examined these mycotic pseudoplasms are usually found to differ markedly from true malignant growths, both structurally and in their clinical features. Many pathologists have succeeded in obtaining pure cultures of blastomycetes from human malignant growths; but considering the richness of these tumors in sugar-forming materials, it would indeed be strange if they were not more prone to this kind of infection than the normal tissues of the body. Inoculation with these organisms certainly fails to produce malignant disease, and no satisfactory evidence is at present forthcoming to favor the idea that cancer is a contagious disease.—*The Hospital.*

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THOROUGHLY STERILISED.

"THIS towel," said the attendant in the germproof barber's shop, "has been subjected to an extreme heat and is thoroughly sterilised. We take every precaution against exposing our patrons to infection or contagion."

"Good thing," commented the patron.

"This soap," went on the attendant, picking up the cake thereof, "has been debacterialized, and the comb and brush are thoroughly antisepticized."

"Great scheme," said the patron.

"The chair in which you sit is given a daily bath in bichloride of mercury, while its cushions are baked in an oven heated to 987 degrees, which is guaranteed to shrivel up any bacillus that happens along."

"Hot stuff," said the patron.

"The razor and lather-brush are boiled before being used, and the lather-cup is dry-heated until there is not the slightest possibility of any germs being concealed in it."

"Fine," said the patron.

"The hot water with which the lather is mixed is always double-heated and sprayed with a germicide, besides being filtered and distilled. It is as pure as it can be made."

"Excellent," said the patron.

"Even the floor and the ceiling and the walls and the furniture are given antiseptic treatment every day, and all change handed out to our customers is first wiped with antiseptic gauze."

"Well, look here," said the patron, who had been sitting wrapped in the towel during all this, "why don't you go ahead and shave me? Think I'm loaded with some kind of a germ that you have to talk to death?"

"No, sir," answered the attendant. "But I am not the barber."

"You're not? Where is he?"

"They are boiling him, sir."

AGE OF THE WORLD.

SIR E. FRY has entered the lists of the controversy on the probable age of the world, not, however, to dispute with those who, under Lord Kelvin's banner, will allow no more than forty million years since its cooling to solidity, nor with those who, under Sir Archibald Geikie, demand at least seventy-three millions, and perhaps six hundred and eighty million years. Nor yet with those zoologists like Professor Poulton, who would like 2,700,000,000 years to turn round in. Sir E. Fry comes as one who would reconcile the disputants, and his olive branch takes the form of the suggestion that sudden variations in vegetable or animal life are not to be regarded as transitions which as quickly disappear, but that they may sometimes become permanent.

Nature, Darwin thought, may, especially when goaded by man, make jumps, but she does no good by it; all her real progress is made by crawling, not by jumping. Huxley did not quite agree; he told Darwin that he had loaded himself with an unnecessary difficulty in adopting this principle so unreservedly. Sir E. Fry is of the same opinion; and he endeavors to show by instance of "pelorism" in plants, and the rapid changes undergone by organisms in response to the conditions of their environment, that the "pace of change" is not constant, and that there may be "inheritable changes in response to change in environment." He also shows that there are some changes in small crustaceans, which live indifferently in salt, brackish, or fresh water, which are interchangeable forms. Guy Marshall has shown the same thing with respect to the two-fold appearance of butterflies hatched from one set of eggs in South Africa, one butterfly having a winter garb and the other a garb appropriate to the conditions of summer. "If nature sometimes jumps," concludes Sir E. Fry, "if great and sudden variations be inheritable . . . if organisms are liable to periods of rapid mutation . . . then may not the period granted by the physicists be, peradventure, enough?"—*The London Morning Post.*

THE MONOMANIA OF CLEANLINESS.

THE abnormal dread of this, that, or the other fact or circumstance, when carried to an extreme degree, merges into the region of insanity. A person who is stricken with unreasonable terror upon finding himself in an open space is now recognized by the medical faculty as suffering from that peculiar species of monomania known as "agarophobia." If, on the other hand, the fear results from being in a confined space, as a tram car, for instance, or a small room, the diagnosis is "claustrophobia," and so on through an interesting little list of monomanias. One of the most curious of these abnormal mental states, perhaps, is that known as "mysophobia," or dread of dirt. It would be somewhat difficult to say at what precise point the virtue of cleanliness has stepped over the border-line between moral virtue and moral madness. In Holland, the love of cleanliness is almost universal, that is to say, so far as its outward and visible signs are concerned. It is well known, however, that their most scrupulous and spotless cleanliness often conceals the germs of many deadly "filth" diseases, notably, those of typhoid fever. Clearly, the mere cleansing of dirty environment, although in itself a desirable and necessary condition of healthy life, can never replace the scientific cleanliness demanded by the modern sanitarian in such matters as pure air, pure water, pure food, good ventilation, housing, and efficient removal of house and town refuse. For all that, a spice of the malady of mysophobia might have an excellent effect if cautiously inoculated among the slum populations of our great towns.—*Med. Press and Circular.*

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ARE THERE NO FIXED STARS?

THE North Star—Polaris—also shows by its movements that it is under the influence of one or more bodies near it. In a period of about four days the star is found to swing back and forth, doubtless as the result of movement in an orbit. Moreover, there are indications that Polaris and its satellite are in revolution together around a third body, so that the system must be regarded as a triple one. The movements of the moon and earth with reference to the sun provide us with a similar case, though on a much smaller scale, for the moon revolves around our globe once a month, while the earth itself is traversing its path around the sun. It must not be supposed, however, that if we could view our system from the stars it would be possible to detect these relative movements of the moon and earth. Seen from the nearest star, our sun would appear as a point of light having about the brightness of Polaris, and even if the planet Jupiter were a luminous body a telescope more than twenty feet in diameter would be required to see it separately from the sun.—*Cornhill Magazine.*

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MADAM WU ON AMERICAN HURRY.

Madam Wu Ting-Fang says that while the Chinese have much to learn from the Americans, the Americans may also learn something from them. She was surprised on her arrival in America to see people "going through the streets at a speed that would be employed in China only in a case of life or death.

"Now, in my country the very opposite obtains. There is an equipoise, tranquillity, and patience about the people which may be attributed to a lack of enterprise, but which adds immeasurably to the comfort of their daily lives. It is said that as a nation we are without nerves; and while this statement may be exaggerated, yet it is undoubtedly true that the Oriental races are not of nervous temperament. This absence of nerves is an inherited condition. A Chinese baby drinks in repose of character with his mother's milk. If you doubt this, look at our infants in arms. They never wiggle and squirm with restlessness, as the American babies do. And this disposition remains with them through life. A Chinaman never wastes his energy. He takes things deliberately; he does not get nervous over his work, and this lack of nerves enables him to sleep under almost any circumstances. To him the American impatience is unaccountable. He reasons that impatience and hurry only make one uncomfortable, and why should any one do anything so unnecessary as to make himself uncomfortable?"

Senorita Huidobro says that the Spanish-American women of South America are not at all the lazy beings they are supposed to be; that they often have marked executive ability, and that they get through with a great deal of work, in addition to raising large families; but they never have nervous prostration because they never hurry. The Spanish-American woman thinks that to hurry impairs her dignity, and she simply will not do it. Many American women, as well as men, would gain not only in comfort and dignity, but in real efficiency, if they would cultivate repose.—*The Woman's Journal.*

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CHROMOS AND CORPSES.

In speaking of the impositions practised on people who have "arrived" in some special line, in the March *Lippincott's,* Mrs. Cornelius Stevenson relates the following instances:

"A young woman of more than usual refinement called upon me one day to get for publication my opinion on the artistic excellence of a floral chromo to be issued as a bait to subscribers by a leading Sunday paper. I can see it now—a huge bunch of vividly white lilies and purple lilacs spread upon a mottled gray background, the whole covering a double sheet somewhat smaller than the newspaper itself. She had been likewise instructed that morning to obtain an opinion upon the same chromo from one of the senior judges of the Orphans' Court!

Finding the court in session, she sat down near the throne to await the recess. His Honor, however, who recognized her, wishing to spare her a long waiting, came to the bar during a pause in the proceedings and courteously asked what he could do for her. She demurred, and replied that she could wait; but he kindly pressed her. Whereupon, to her intense embarrassment, she was obliged to unroll the chromo before the entire court and then and there to state her absurd errand. The flush of mortification was still upon her cheek as she told her story; and when I burst into an uncontrollable fit of laughter at the ridiculous situation, she looked reproachfully at me. To her just then the grotesque scene seemed tragic.

"However convinced one may be of one's obligation to others, however desirous to help worthy enterprises, there are lines which one must draw in pure self-defence. And when one day, presumably because of my interest in ancient Egypt, I was requested to address some undertakers on the subject of the preservation of corpses, the limit appeared to me to have been reached."

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LEFT OUT.

When Mahone in Virginia, was a candidate for election in his congressional district on the Readjuster and afterwards the Republican ticket, his appeal for the negro vote did not commend him to the favor of the Virginians, and his opponents made him the subject of many amusing stories, one of which is the following:

"I dramp," said an aged darky, "dat I wuz dead, Mars, en 'fo' I knowed it, dar I wuz, stannin' at dat gate whar St. Peter got de key. I knock at dat gate long time, den attah while Mars St. Peter he holler out, 'Who's dat?'

" ' 'Tain' nobody but me, Mars St. Peter. I warn git in wid de fo' en forty thousan', en wauk dem golden streets.'

"St. Peter, he holler out, 'Is you mountid or is you afoot?'

"I holler back, 'I'se afoot, Mars St. Peter.'

" 'Den you kyarn come in,—kyarn nobody git in douten dey mountid.'

"I feel pow'ful bad, but I turn round', en, bless Gawd, fo' I tuk two steps dar wuz Ginurl Mahone. Den I holler out, 'Ginurl, 'tain' wuth while to go up dar, kase St. Peter low you kyarn git in douten you's mountid.'

" 'Dat so?' said de Ginurl, en he study en scratch his head.

" 'No, suh,' sez I, 'you got to be mountid.'

"Den de Ginurl say, 'I tell you whut, ole man, you do jes lak I tell you, an I'll git bofe on us in.'

" 'Duz you think you can wuk it, Ginurl?' sez I.

" 'Sho I kin,' sez de Ginurl. 'Now, ole man, you jes' git down on yo' all fours, en I'll git on yo' back en ride you in. You see?'

"Dat look lak he could wuk it, so I got down, en de Ginurl, he git on my back en ride right smack up to dat gate ag'in. Den St. Peter holler out when de Ginurl knock at the gate,—

" 'Who's dat?'

" 'Ginurl Mahone,' say the Ginurl so loud you mouten hyerd clean back in old Firginny.

"Den St. Peter, he holler out ag'in, 'Is you mountid, Ginurl, ur is you afoot?'

" 'I'se mountid, St. Peter,' holler de Ginurl.

" 'All right,' holler back St. Peter. 'Ginurl, jes' hitch yo' hoss on de outside en wauk right in.' "

The story did not need application on the part of the speaker. The audience more than responded.—*March Lippincott's Magazine.*

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NOTES BY THE WAY.

A NATIVE of Lincoln, Nebraska, is dying from an attack of hiccoughs, which has been incessant for over a week. He is a prominent lawyer and prohibitionist.

A Chicago lady has had twins who, not being content with being born on separate days, did not even come into the world the same year. One was born at 11 o'clock on the night of December 31st, and the other at 1 a.m. on January 1st.

Whilst digging for gravel on land belonging to a sewage farm at Sawbridgeworth, a man unearthed the skeleton of a male adult. It was buried in lime about two feet deep. Medical opinion is that the body had been interred for over 30 years.

The French Chamber of Deputies have passed an extraordinary credit of £200,000 to cover the expenditure necessitated by the Martinique disaster.

One of the healthiest spots in the world is the Island of Pico, in the Azores. It has a population of about 3,000. For 395 years it has not had a physician, or a chemist's store, or a contagious disease.

How many people are aware that chemically pure water is injurious for drinking purposes? Distilled water contains but a small amount of salts, and on reaching the stomach extracts these from the animal tissues, giving rise to gastritis and catarrhal inflammation. Doctor Koeppe illustrates the poisonous qualities of chemically pure water by the spring of Gastien, which is known as the poison spring, and is so nearly pure that it has an electric conductivity of 31—that of ordinary distilled water being 49.

[It would be well to take this water story with a few grains of salt.—Ed. GAZETTE.]

It is a common sight in Amoy, China, to see baby boys and girls being hawked round the town in baskets. The prices asked vary from 10s. to £1. Drought and bad times are said to be the reasons for parents parting with their children.

An extraordinary marriage ceremony has just taken place at Kochi, Japan. The bride-elect committed suicide on the eve of her wedding. The body was recovered, and at the request of the dead woman's parents the ceremony took place between the living bridegroom and the corpse.

Between 21 and 30 a man is ill 5½ days a year on an average, and between 30 and 40 7 days. In the next 10 years he is ill 11 days annually, and between 50 and 60 20 days.

* *

VERY CLEAN LITTLE DOGGY.

KOJIMACHI covers a large part of the uptown quarter of Tokyo, but no matter—we were going to say, in Kojimachi lives an accoucheuse of very large practice. She owns a very diminutive specimen of the canine family. It is a lovely little dog and the neighbors say that it lives like a lord, if a bow-wow can live so. Anyhow they say, its mistress never allows it to be fed on "left overs;" she insists it have the best of beef for its three meals and that it have a wadded back cover on when the weather is cold. Of course the dog has every liberty to roll on its back on the muddy road and try to get rid of the wadding. Well for all the great care taken of it, the dog always looks thin and weak. The fact has furnished for some time back exhaustless gossip for the good housewives of the neighborhood. Now it turns out the life of this lordly dog is not all a bed of roses. As an accoucheuse of wide fame the dog's mistress has a large number of pupils. The young damsels have of course to be taught everything in the most practical manner possible. The most practical of the practical operations consists, it appears, of the lesson on handling babies and the most difficult part of that lesson in learning how to give a bath to those little specimens of humanity. Now it is not often that there are on the markets babies for hire on whom the aspiring wet nurses may practice this important part of their lesson. The shrewd mistress has long since hit upon the plan of substituting her pet for a baby and the poor animal has to go through the ordeal of being gently but firmly held down whether he will or not in a tub of lukewarm water, and then pulled out and towelled, the process being repeated in the course of a day as many times as there are the pupils to be taught! The poor creature would doubtless deny itself all the luxuries provided for it and live by making rounds of and upsetting the neighbor's garbage boxes if only it could be excused from attendance at the object lesson part of its daily routine. But fate has ordained otherwise and it is pining away its dear life in the midst of too much cleanliness. Hence its emaciation. Some body, it is said, suggested the other day that the professional dame might use a tabby cat in place of the dog for a change, but the good lady replied that she would not for the world have her pupils sue her for scratches on their hands. The *Hochi Shimbun* is our authority for this story.—Sei-i-Kwai *Medical Journal.*

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RELATIVE MERIT OF BUTTER OR OIL IN COOKERY.

Recent experimental work done by P. Carnot and Miss Deflandre show that subsequent to the digestion of fatty matters, the quantity of liver fat revealed by the action of osmic acid on a section of liver substance was considerable. The quantity of fat obtained from the liver was much greater after the ingestion of butter than after cod-liver oil, and particularly neat's-foot oil. Vegetable oils, such as olive oil, are not so well assimilated by the liver as animal oils. In one experiment, for instance, the proportion of liver fat, which was 7.03 per cent. six hours after the ingestion of 10 grams of butter, was only 2.60 per cent. six hours after the ingestion of 10 grams of vegetable oil. From the superior ease of assimilation possessed by animal oil over vegetable oils. the advantage of the former for culinary use is readily established.

HERBS AND OTHER COUNTRY MESSES.

They are interesting and incomprehensible. They are vaguely called the "Weeds." They serve no purpose. Here and there, a few, in very old villages, retain the spell of contested virtues. Here and there, one of them, right at the bottom of the apothecary's or herbalist's jar, still awaits the coming of the sick man, faithful to the infusions of traditions. But sceptic medicine will have none of them. No longer are they gathered according to olden rites, and the science of "Simples" is dying out in the housewife's memory. A merciless war is waged upon them. The husbandman fears them; the plough pursues them; the gardener hates them, and has armed himself against them with clashing arms—the spade and the rake, the hoe and the scraper, the weeding hook and the grubbing axe. Along the high roads, their last refuge, the passerby crushes them, the wagon bruises them. No matter, they are there—permanent, assured, abundant, peaceful, and not one but answers the summons of the sun.—*The Fortnightly.*

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DOES THE SKIN LIVE AFTER DEATH?

Dr. Waller records some interesting observations on the human skin. His researches which follow on the lines of experiments he has previously recorded upon the electric currents in the skin of the frog and the skin of the cat, show that detached human skin retains its vitality for a very considerable period. "Healthy skin from the operating theatre," he finds, "tested within forty-eight hours after operation, has always manifested signs of life" in response to electrical shocks. This condition is contrasted with that of skin from the dying and skin obtained from subjects that have died gradually, where similar reactions are not obtainable. But forty-eight hours is very far from being the maximum period during which vitality persists. Much to his own surprise and notwithstanding every possible precaution against fallacy, Dr. Waller informs the *British Medical Journal* that he found "on a healthy skin signs of life as long as ten days after removal, and this did not appear to be a longest possible period.

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HUEPPE AND KOCH.

The two schools of thought on questions bacteriological are well represented at present by the distinguished investigators Hueppe and Koch. Both men are deeply versed in bacteriology and physiological chemistry. Hueppe emphasizes the importance of the perfect health of the body cell—and the special treatment of the body cell as a means of frustrating the attacks of germ life. Koch emphasizes the importance of destroying entirely all germ life so that there will be no attack.

Of course both men are right. We must destroy all the germ life we can. But since a war of extermination of disease germs is impracticable at present the physician finds a more profitable field for his exertions in preparing the body cells to resist and throw off the attack of germ disease. It is no doubt by this sort of special preparation of the lung cells that hypophosphites and cod liver oil do so much to prevent the progress of the tubercular organism. Scott's Emulsion containing both the cod liver oil and the hypophosphites is a good example of those therapeutic agents which bring immunity by reinforcing cell life.

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PREACHING AND PRACTICE.

A touching story comes from Nebraska about a scene which occurred there during the last convention of the State Woman Suffrage Association. One of the delegates had just made a speech urging the women not to be merely vines clinging around trees, but to cultivate independence and learn to stand alone. The address was followed by stereopticon views, and while the house was in darkness some miscreant fired a pistol, and this is what followed: "When the lights were turned on every woman in the audience was found with her arms around her husband's neck, or, if husbandless, she was clinging to the nearest man, while the orator had discovered a place under her husband's left ear, which fitted her head exactly."

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PALPITATION OF THE HEART.

A French physician announces that distressing or excessive palpitation of the heart can always be arrested by bending double—the head down and hands hanging—so as to produce a temporary congestion of the upper portion of the body. In nearly every instance of nervous or anæmic palpitation the heart immediately resumes its normal function. If the movements of respiration are arrested during this action the effect is still more rapid.—*Exchange.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise." —*TISSOT.*

Edited by G. H. Patchen, M.D.

TO OUR READERS.

It is the desire of the editor to make this department of the Gazette of the greatest practical interest not only to those engaged in the practice of Kinesitherapy as a medical specialty, but also to all readers who desire to learn how, by care and proper methods of physical training, disease may be prevented, health promoted and all bodily powers and functions duly developed and maintained in the highest state of efficiency.

This undertaking, the editor feels, is too great to be successfully carried on by his own efforts. Assistance is needed from every available source. For this reason, timely and substantial aid from all classes of readers is earnestly requested.

Practitioners can render valuable assistance by contributing original articles upon any subject in which they are especially interested, by reporting cases successfully treated, by discussing questions relating to the theory and practice or by giving details of improved methods of treatment or of technique.

Proceedings of medical gymnastic societies and of societies devoted to physical methods of treatment will be greatly appreciated, as will, also any item of news or knowledge that will be helpful in professional work.

The editor sincerely hopes that every Gazette reader will appreciate both the amount and importance of the work that may be done by this department and will not only willingly, but persistently render such assistance as he is abundantly able to command.

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SUGGESTIONS ABOUT EXERCISING FOR HEALTH.

In the December number of the Gazette we devoted considerable space to pointing out the harmful consequences which often result from the endeavor to promote health by practising physical exercises whose main effect is to develop the exterior muscles of the body. We now wish to call attention, in outline, to a more rational method—one which is free from all danger and productive of only beneficial results.

Physical exercise is, as every one should know, indispensable to health. Taken in a proper manner it is the surest way of perpetuating health when it already exists and when modified and adopted as, is always possible, to meet remedial needs, affords the most reliable means of restoring it when it has become impaired.

It is reasonable to suppose that in exercising for health, only such process should be employed as will develop the power and activity of the organs upon which health depends. Such a course will not only promote it in the best and most natural way, but will, at the same time, develop the exterior muscle in a symmetrical manner. For just as surely as the expression of the countenance reflects the state of the mind, just so surely do the voluntary muscles indicate the size, power and activity of the vital organs.

Health, as we know, is a physiological product—the result of the harmonious action of the processes of respiration, circulation, digestion, assimilation and elimination. Consequently it will vary with the degree of vigor and harmony with which these processes are carried on. In the strictest sense, it is the condition of the involuntary muscles that determine the degree of health. If they are strong and active, vigorous health is assured to their fortunate possessor.

But this strength and activity is not self-perpetuating. It requires frequent reinforcement and nature has wisely arranged that it shall be supplied by the action of the voluntary muscles. Hence every voluntary act in any part of the body, whether it be work or play, intentional or unintentional, contributes to this end.

As the object of taking physical exercise is to develop the lacking functional power of one or more of the vital organs and functions which are deficient in this respect, and as this deficiency varies in different individuals both in regard to its location and its degree of variation from the normal, it is evident that no exact schedule can be formulated that will be suitable for universal use. Both the selection and order of arrangement of such exercises must be decided by individual needs. Otherwise they will not prove specifically helpful, and may be productive of harm.

What these individual needs are depends upon the defective conditions of the system which have either been inherited or acquired. But whether inherited or acquired, there are forms of remedial exercise which, if begun in time and intelligently used, are able to correct and improve them.

Those that are hereditary are the most difficult to remedy. For these conditions, corrective exercises should be begun during childhood and continued, if necessary, throughout the natural period of growth. Acquired defects, if the heredity is good, are sooner improved, but the same care and discrimination should be used.

No person should undertake a course of physical exercise for the improvement of his health without thoroughly understanding the particular, organic and functional defects which need correcting, and the limitations of his powers of activity and endurance.

Although this knowledge should be as familiar to every adult as the multiplication table, it is, as yet, so universally lacking that most people are still obliged to buy it in the form of medical advice. But it is far better to obtain it in this way, expensive as it is, than to depend either upon one's own knowledge or that of other laymen whose qualifications are very little if any better.

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THE FOOT IN GYMNASTICS.

Signs are not wanting that a deep sense of the worth and beauty of the body, largely lost through many centuries, is again taking possession of the minds of men. The body as a changing, efficient and beautiful organism is being studied with appreciation, one might almost say with affection, by physicians, artists, and men of science; and in conformity with a recent movement in thought, it is being studied as a whole and synthetically.

This paper aims to present the results of recent investigations on the structure and functions of the foot in a form which may be of practical use, both in the care of the foot and in the movements and postures of the body. Largely through a mistaken notion of the unworthiness of the body, it has long been concealed, neglected and abused, and false standards of form and function have become prevalent even among those who have studied and depicted it. "Is then the garment of the soul, its very mould and image, so shameful?" The work of the early masters of the Renaissance, when they began to paint and carve the nude, reveals their evident embarrassment in attempting to depict what they had practically never seen, or seen only with a certain shamefacedness, and correct ideas of form were slowly and painfully evolved. This is especially true of the foot. From that day to the present time, artists and even anatomists, have not hesitated to depict as normal and beautiful the degenerate foot of civilized life, deformed by its coverings, weakened by its cramped and narrow activities. The normal shape and use of the foot, and with them the appreciation of correct form and function, are in great measure lost. As a matter of fact the principal attention we bestow upon the feet is to conceal them with stiff coverings of conventional form. David Copperfield manifested his tenderness for Dora by wearing straw colored gloves and laying the foundation for a beautiful crop of corns. "If the boots I wore at that period," he says, "could only be produced and compared with the natural size of my feet, they would show the state of my heart in a most affecting manner." "My boots might be placed in any collection of instruments of torture." The world before and since Copperfield has persisted in cramping the feet in a misguided effort to please.

In order to study the unspoiled foot one must go to infants, savages, and classic sculpture, and strange to say, to cripples, who have never worn shoes. Any excellence may more easily be found in a model than a normal foot, and we must adjust our practice to the fact that all shoe-wearing feet are more or less deformed. Would that we had "gods of strength" to whom we might pray for strong feet, as do the Japanese jinrikisha men.

The skeleton of the foot consists of the bones of the tarsus, metatarsus, and phalanges, twenty-six in all. They are so shaped, placed, and bound together as to make the foot narrow and rigid at the heel, broad, elastic, and somewhat arched across the ball. The foot is markedly arched from behind forward, but much more on the inner side, where it is also more yielding. Broadly speaking, the outer and back parts of the sole are rigid, the front and inner parts adjustable and elastic. Antero-posterior motion at the ankle joint is from 60 to 80 degrees, and there is three times as much below as above the right angle; there is also a small amount of lateral motion. The function of the foot extensors is mainly to raise the forefoot in walking so that the toes may not drag. The large flexors of the calf do the heavy lifting and pushing, and are three times as strong as all the other ankle muscles, and five times as strong as the extensors. Lateral motion is slight at the medio-tarsal joint, but twice as great as the subastragoloid and amounts to 45 degrees. Abduction, when considerable, is combined with outward tilting of the sole, or eversion, and the compound movement may be called pronation; in extreme pronation the forefoot is lifted. Adduction, when considerable, is combined with inward tilting of the sole, or inversion, and the compound movement may be called supination; in extreme supination the forefoot is dropped.

The toes in an infant move almost as freely as fingers, the large toe is somewhat thumblike and turns freely inward; in fact, the foot shows more than traces of prehensile ancestry. It is a grasping as well as a supporting organ, and in many tribes of men the feet are used like hands. The writer has seen Japanese cabinet makers, seated on a mat, hold and shift their material with their toes. Individuals deprived of the use of the hands sometimes develop extraordinary dexterity in the use of the feet, and have been able to draw, paint, play on musical instruments, and perform other surprising feats. In certain positions taken by athletes the toe grasps the ground, as may be seen in the statue of the discobolus, or in a starting sprinter. On the other hand, the feet of many modern "strong men" are weak, degenerate, deformed, and their gait stiff and awkward. They have impaired the main functions of the foot, which are support and propulsion.

The foot may be considered as to its form, as to its posture and relations to the leg and trunk, and as to its functions.

In the unspoiled foot, as seen in children or savages who have never worn shoes, the heel is narrow and rigid; the front, broad and elastic, and the metatarsal bones bearing the toes spread out like the sticks of a fan, each toe while at rest lying as straight and separate as a finger. The inner edge of the foot looked at from above forms a perfectly straight line from heel to toe; but looked at from the inner side it forms a graceful and elastic arch; the outer edge of the foot is much less arched and more rigid, bearing with the heel and ball practically all the weight, as shown by a study of footprints. The heads of the metatarsals form a transverse arch which widens when weight is put upon it. Such a normal foot is often called a straight foot because it is characterized by a straight inner border, while in nearly all shoewearing feet the great toe is bent toward the middle line of the foot.

The posture of the foot is straight, without regard to its shape, when the inner border of the foot is parallel to the median vertical plane of the body. It is that posture of the foot, when it is rotated neither outward nor inward, but points straight ahead. In this straight posture the foot must bear certain relations to the leg in order to be normal. In particular, the heel bone must stand upright under the tibia, and not tilt to one side, and the forefoot must not be abducted nor everted,. except momentarily and to a moderate degree, as the result of bearing the weight of the body. As weight is thrown upon a straight foot, the inner ankle becomes prominent, sinks, and moves backward, the arches are depressed and elongated. The scaphoid becomes prominent; the foot yields on its inner and weaker side, and being prevented from turning outward the limb rotates inward at the hip joint. When the weight is removed the elasticity of the foot brings it back to its natural shape and posture. It is when there is a disparity between the weight and the strength and elasticity of the foot that the everted posture temporarily assumed under normal conditions of work becomes permanently impressed upon the foot, which becomes then, in relation to the leg, abducted and everted; it is then a weakened foot and may become a more or less rigid and painful flatfoot. In this condition, when the leg looks directly forward, the foot points outward and forward; in other words, the individual toes out.

Practically the most important points to bear in mind are the facts that abduction and eversion are fused into one compound movement which is favored by outward rotation, and that the outward posture is an indication of and favors weakness, while the straight or slightly inward posture indicates and favors strength and efficiency.

In discussing foot postures, it is necessary to draw a sharp distinction between the foot in action, the working foot, and the passive or resting foot. When the body rests supported on one foot, that foot is working, and should always be straight. This active leg is called the "Standbein" by the Germans. The passive or resting leg called the "Spielbein," may be placed forward to the side, or backward, and may be rotated out without harm to structure or correctness of pose; but when it in turn receives the weight and becomes the "Standbein," the foot should be directed forward in order properly to distribute the strain. In the pronated and outtoeing foot, the strain is thrown upon the ligaments, as in the hyper-extended knee, the overtilted pelvis, the rounded back. In the straight or intoeing posture, the muscles are brought into play and the ligaments are relieved of strain. Speaking broadly, when it is proper to put strain upon the ligaments, the outtoeing posture is proper; under other circumstances it is incorrect. The relaxed or outtoeing position favors and accompanies bodily relaxation. Children with habitual faulty attitudes of the trunk usually have weak ankles and outtoeing feet; on the other hand, individuals who are strong, lithe, and erect, like runners, hunters, mountaineers, woodsmen, and those habituated to carrying burdens upon the head, will be found to use the straight or inverted foot.

The Anglo-Indian wizard thus describes the gait of a mountaineer: "This is my country, said the lama, and with steady, driving strokes from the loins he strode upward."

Loti says: "Et de mes pas rapides de montagnard, à longues enjambées nerveuses."

Roberts thus describes the hunter's going: "And he swung off with long, active strides down the trail."

Kennan observes that in Martinique "you cannot go a mile on any country road without meeting at least one line of straight, vigorous, barefooted women, walking swiftly with a long, free, swinging stride, and balancing without effort on their heads loads weighing from fifty to eighty pounds." He remarks that "the habit of carrying heavy loads for hours at a time on their heads has given them a superb erectness and grace of figure together with an elasticity of step and a freedom of movement that I have never seen equalled." These are not descriptions of the inelastic, outtoeing heel gait, but of the springy heel and toe straight-foot gait.*

Unfortunately this is not the kind of physique that is presented as material to the physical trainer, the artist, and the physician. We see the degenerate foot of civilized life, weakened, strained, or broken down by overweighting or monotonous use, and cramped by shoes. It is to be noted that unrelieved standing is, perhaps, the most important cause of flatfoot, while, as Hoffman remarks, it is never caused by correct walking. This affection is most common among those who habitually stand or loiter, rather than among those who walk or move actively. The weak, inelastic foot of civilized life is only a part of a general weakness, evident in faulty postures of the head and trunk and often of the entire figure. When such individuals walk, climb, or run, their weak and everted feet shift the weight to the heels, giving them a stiff and awkward gait.

Weak feet are not only an expression of general atony, but directly tend to produce faulty attitudes. It is easy to see how the everted foot throws undue strain upon the inner side of the knee, favoring knock-knee, and the two conditions are often associated, though the weak ankled child sometimes instinctively inverts the feet to relieve the strain on knees or ankles, a protective manœuvre which should be respected. It is the writer's belief that the weak and everted foot also has a malign effect upon the poise of the pelvis and spine, and that in fact under its influence the whole posture deteriorates.

Let us consider the first gymnastic standing posture in the light of the foregoing, a posture used as a form, largely for descriptive purposes, or as a point of departure, but which has nevertheless exerted an unhappy influence on gymnastic postures and movements, and even, it is to be feared, on posture and carriage generally. This posture is the well-known one, with body erect, head facing forwards, the arms at the sides, the knees straight, the heels together, and the inner borders of the feet making an angle open forwards of from 60 to 90 degrees according to the Swedes, Germans and military authorities. This position is assumed only to be departed from, but the harmful eversion of the feet follows persistently through subsequent movements, operating mischievously on posture, poise and movement. The anatomical and artistic first position, it is interesting to note, is often depicted in special treatises with closed feet. The gymnastic first position is one never naturally assumed; indeed, a symmetrical posture with a symmetrical distribution of weight is the one which most easily fatigues and overstrains and which least subserves any practical purpose, and should rarely be retained as a basis for arm movements, for instance. Right and left alternation, as in progression, where one side rests while the other works, should be more largely employed. For example, the weight may be borne on the forward straight foot during arm movements, and shifted from right to left at intervals. It is an error to carry forward the posture of symmetrical quiescence into subsequent activity. We have, I fear, been doing much of our gymnastic thinking from the basis of a symmetrical wooden figure with spread toes as a basis. Let us substitute the type shown in the Apollo, or the dorphorous of classic sculpture, with the weight resting on the forward straight foot. Not only will the foot be protected and strengthened, but the genera posture will be favorably affected.

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* Greek sculpture of the best period, depicting a generalized type, a sort of composite of the best examples of form, always shows the straight, weight-bearing foot. In later times, in proportion as the type and the art had degenerated, the outturning toe became more common and pronounced.

It is not difficult to find gymnastic classes where drills are executed with the head and abdomen poked forward, the chest flat, back hollow, knees sprung back and feet everted, without grace of carriage or correctness of movement, and where the faulty attitudes brought to the drill are as often exaggerated as improved. It is surely not surprising that methods showing no better results do not win an enthusiastic endorsement either from educators or the general public. Nor is it to be expected that the simple expedient of turning the feet inward should remedy such fundamental evils. What is needed is a cultivated sense of the beautiful and effective in posture—the two will be found to coincide—and a careful review of gymnastic movements from this point of view. The expert workman, the wild animal, instinctively shun the ugly in pose and movement for the simple reason that beauty of line and grace of movement mean efficiency and economy of force. Watch an expert axeman at work, observe the play of young children and young animals, study their poses, outlines, and movement; the wild beasts "kill in curves;" ugliness has been eliminated because it spells inefficiency. It must also die in the gymnasium, if gymnastic training is to become wholesome, vigorous and uplifting. Only, the appeal must be to an enlightened taste, not to the taste which considers deformity beautiful. Let the beginning and end of each movement be a definite posture which shall satisfy an enlightened hygienic, physiologic, and artistic sense.

Not only for the sake of the feet but for the sake of the whole body a flexible, flat gymnastic slipper of correct shape and ample size should be provided. This should be broad in front, narrow behind, and straight on the inner side. Special attention should be paid to the posture in which the foot receives the weight, as already indicated. As forward propulsion is far the most important active function of the foot, the forward straight foot should be the standard, to be departed from only for special reasons in certain exercises, especially those which bring lateral trunk action into prominence. The weight should be frequently shifted from one side to the other. Besides this, special exercises should be introduced which directly tend to strengthen the foot on its inner and vulnerable side, and to prevent deformity. Such movements are adduction and inversion of the feet, and ankle flexion, as in heel raising with the feet adducted.

If the facts and deductions here presented are correct, gymnastic exercises require examination and readjustment from the standpoint of posture.

The everted foot is the legacy of the fashion plate, the shoemaker, the dancing master, and the drill sergeant. It indicates indolence, weakness, affectation and degeneracy, and as the dominant note of a system it should be abolished. By taking pains correct shoes may be obtained. Straight foot dancing is now successfully taught, and military experts are beginning to doubt the utility of the parade posture and parade step.

When physical trainers, perceiving the instability of its foundations, abandon the outtoeing posture, their art will gain in grace, efficiency and power.—HENRY LING TAYLOR, M.D., in *A. P. E. Review.*

EXPERIENCE AND OBSERVATIONS WITH MECHANICAL MASSAGE.

By Miss E. J. Andrews.

Whoever possesses any knowledge that will benefit humanity either mentally, morally or physically ought to give this knowledge to the world. I say *ought* because it is a duty.

Acting upon this belief I desire to place before the readers of the Gazette some of the knowledge I have obtained by observation and experience concerning mechanical massage as a reliable and successful remedy for the permanent cure of chronic forms of disease.

To present this knowledge in the most condensed and impressive form, I will omit all theories concerning the rationale of the action of this wonderful remedy and simply give the results of its proper application in a variety of serious and obstinate cases.

The first case is that of a child, nine years old, who had hip-joint disease. Her physician put her in bed with the affected leg extended, with a weight on the foot and kept her there for three months. The result of this treatment was far from satisfactory; it only added to her discomfort. For, while it did not do the hip any good, it caused insomnia, indigestion and constipation—abnormal conditions which, afterward required some time to correct.

Soon after this, the parents, having heard of the good effects of mechanical massage in similar cases, the child was placed under treatment by this method and in six weeks she returned to her home well, able to walk a mile to school daily, which she continued to do all of the following winter.

Another case—a most remarkable cure—is that of a woman who had anchylosis of the ankle for three years. She took a course of mechanical massage to build up her general health preparatory to having her foot amputated.

To the astonishment of herself and physicians, improvement in the condition of the ankle began almost immediately and continued so rapidly that, at the end of six weeks, she was able to walk a mile with comfort and without the use of a crutch.

Still another very interesting case is that of a young man who had been treated by several of our best physicians for varicocele with such indifferent results that an operation was believed to be the only thing that would afford any benefit. Before submitting to the operation the patient decided to try mechanical massage.

The treatment was accordingly taken and with so much improvement that, after it had been employed for ten weeks, his physicians decided that an operation would not be necessary.

The last case is my own.

I was in the Scarboro Crossing accident which occurred on the Boston and Maine R.R. on the 21st of January, 1889, receiving a severe and painful injury to the spine. I was carried to my home and was under treatment for six years by the best surgeons in Maine and Massachusetts with no benefit. In fact, I grew gradually worse and was given up, by them all, as being beyond their skill.

About this time I went to Washington, D.C., to remain through the winter and, while there, my attention was called to the treatment of chronic cases by mechanical massage.

I began taking the treatment and very soon began to feel better. The improvement was so rapid that in the space of four months I had entirely recovered and have remained well ever since—a period of eight years.

I could mention numberless cases of chronic disease of many varieties and forms, which this treatment has permanently cured, even after drugs, baths, electricity and the knife have failed, but time and space will not permit me to do so.

I will conclude by saying to any of my readers, who may have any illness of long-standing, don't be discouraged. Try mechanical massage.

It successfully cures rheumatism by restoring the digestive organs to healthy action, and by resolving, by oxidation, the noxious uric acid into harmless urates.

It cures constipation by imparting tone and muscular strength to the intestines.

It cures displacements of the uterus by giving renewed strength to relaxed and weak muscles and ligaments that should sustain this organ in its normal position.

It cures nervousness and insomnia by relieving the brain and spinal cord of excess of blood.

But since you have been ill a long time, don't expect your health to be restored at once. Be patient and continue the treatment until relief and improvement is experienced. Both will surely come to you. The right course is to continue treatment until a *complete cure* is effected. The time required will differ in different cases, depending, largely, upon the length of time the disease has existed.

A closing word of caution and advice: Nearly all chronic diseases, under the best possible treatment, will improve for a time and then have a short period of relapse. I mention this fact that the patient may know that such an experience is not unusual and does not signify that the treatment has ceased to act beneficially. Continue the treatment and improvement will soon manifest itself again. "Don't expect impossibilities. Nature can be assisted but not hurried."

Saco, Maine.

NOTE.—Mechanical massage is massage given by mechanisms or machines. The advantages claimed for it over manual massage are: its more agreeable manner of administration, its more prolonged application when necessary, and its ability to supply pressure motions at rates both much slower and much more rapid than is possible to make by the hand—producing, in its rapid forms, chemical and nutritive effects often indispensable to inaugurate and complete curative processes.

* *

WHY SOME LOSE AND OTHERS GAIN WEIGHT THROUGH EXERCISE.

BY W. J. CROMIE, PHYS. DIR. Y. M. C. A.,
Easton, Pa.

IT is often said that one's food is another's poison and that exercise which benefits one is hurtful to another. Both of these statements are in a sense true, but it is also true that the same exercise will help one who is thin and another who is exceedingly fleshy.

If we go into a well regulated gymnasium and examine a group of men who are doing exercises by the physical director's orders we will be surprised that the same treatment can be suitable for such different temperaments. At once the question will be asked, "How can the same exercise benefit one of a stout build with red face and flabby flesh, and another who is thin, pale and emaciated?"

It will surprise us still more if after a few weeks on viewing these same men we find that the fleshy man has lost weight. He no longer has that high coloring which announced fatty degeneration of the tissues. The thin man has a higher coloring; the blood flows to his formerly sunken cheeks, and his whole appearance indicates a more vigorous life.

In fact, both men appear to be about the same structure and physiognomy. Why this change in men who have such widely opposed disturbances of health? Let us first consider the fleshy man.

The conditions that one ordinarily associates with the very fleshy man are muscular inactivity, good living and middle life. Food taken into the body and digested must eventually be gotten rid of through the kidneys and lungs. When food is taken into the system it is like putting coal on the fire it cannot be taken out again as coal. The only way to get rid of it is by burning it—the carbonic acid gas going up the chimney, while the ashes are raked out at the bottom. The coal in burning liberates energy as heat or as work, but in some way it must be oxidized in order that it may be eliminated from the body. A certain amount can be stored up as fat. Therefore persons who eat freely of rich foods and take but little exercise tend to accumulate more food stuffs in the system than are eliminated day by day. These *"reserve materials"* are stored away as fat through the various tissues of the body.

When one's system is overcharged with fat or reserve materials, there is an urgent demand that these materials should be burned and changed into energy and this is accomplished by systematic exercise.

It seems that in middle life persons are more fleshy than when young, and this is probably due to the fact that they are far less apt to be physically active at this time than when they were in their younger days.

The *thin* man gains weight through vigorous exercise because the respiration is increased which in turn increases the circulation of the blood. We are led to believe more and more that about all any exercise does is to increase the respiration. Of course some exercises create large muscles, but these are not necessary to health.

Enforced deep breathing brought about by vigorous exercise fills out certain air cells ordinarily inactive, which would remain inactive if it were not for this stimulus. This atmospheric air drawn into the lungs by a vigorous, powerful inspiration seeks out the most obscure corners, and inflates these inactive air cells. If the forced inspirations are often repeated these air cells eventually associate regularly in the ordinary respiratory movements. Of course in time the whole structure of the lungs and chest will be changed; they will become larger and work better.

The enlargement of lungs and chest is not all that is being accomplished through deep breathing. This enforced breathing increases the circulation of the blood, which then pulsates through the veins and arteries with increased vigor and all the organs of the body are bound to become awakened under this powerful stimulus. By exercise more oxygen is introduced into the system, and more oxygen is more life. Under the influence of this powerful oxygenated blood the intestines perform their peristaltic movements, which are necessary for digestion, with increased energy. Even the rise and the fall of the diaphragm caused by exercise and deep breathing aids the circulation by its alternate contraction and relaxation. Thus we see how increased oxygen taken into the blood through the lungs by increased breathing caused by vigorous exercise assists the progress of digestion and assimilation, and increases the weight of the body.

As inactivity can lead to the accumulation of certain useless materials within his system, and he has much more to do in the preparation of the materials necessary to health, it follows that some whose lives are too inactive put on too much fat, while others become thin by inactivity.

The fat man because he becomes tired easily thinks he should not exercise. He should not be surprised at this because new organic changes have taken place in his system, and he has much more to lift and carry when he exercises than has a thin man.

If you are thin, exercise and assist your digestion and assimilation by "eating" more oxygen.

If you are very fat exercise and burn up the useless materials that have accumulated in your system.—*The Naturopath.*

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EXERCISE FOR THE LAZY.

"CULTURE" has been cultivated until many people are a little sick of it. At present "physical culture" is producing or supposed to be producing a great crop. There are many varieties of both species. In these easy times you can be indoctrinated in both cultures by mail. It must be admitted that the physical kind seems to be pursued with the more enthusiasm. Thousands of well-to-do persons use the Turkish bath and "physical culture" as a sort of penance for their sins of high living. Fat men seek to recover the waist of youth. Lean and hungry Cassiuses would they were fatter and rush into wild exercise. Oldish men try to spruce up their muscles and soften their arteries. Most of us train by proxy and show our sound athletic instinct by yelling at football and baseball games or betting on horses. But we have our periods of sternness and fanaticism. We plan seasons of diet. We forsake punch and take up the punching bag. We join athletic clubs. We hire instructors in athletics. We forswear smoking for weeks; so eager are we to encourage our lungs. We buy tickets to a course of boxing lessons and usually tire of them after we have been knocked into our original limpness a few times.

We throw out our chests and take deep breaths with a solemnity that makes the beholders grin. With little wands in our hands we take or start on long walks, not without pithy comment from appreciative small boys. We pledge ourselves to exercise a half hour before breakfast and a half hour before going to bed; and the strongest-willed of us sometimes keep that pledge for a whole month. We subscribe to gymnasiums and soon learn to keep away from them. We clutter our rooms with mysterious and complicated apparatus which we are always falling over. The spirit is willing, but the flesh is weak. In the end the sluggishness of the remote unicellular organisms we are thought to spring from asserts its sway. Satan knocks out the good resolutions. There is a place for a mug or glass in many comfortable modern lounging chairs in athletic clubs. Smoking is the nurse of the philosophic mind. There is no joy but calm. Who wants to be a great, hulking athlete, a gladiator? So fades our dream.

If we have a little more persistence, and do exercise ourselves into good trim, we fall just as surely in time. The ascetic life is tiresome. We relapse into beefiness and softness. Our exercise is usually spasmodic. We rush into too much and soon fall away into little. But no amount of experience cools our ardor. Next summer or next fall at the latest, we are going to take a course of "systematic" exercise. We mean it in earnest, this time. Lawn tennis is for boys. Golf grows wearisome. We must and will have a system of exercise and improve immeasurably our own system thereby.

The perennial seeker of exercise will find comfort in an article written for *American Medicine* by a physician to whose intelligence that journal certifies. He has convinced himself by "prolonged observation" that the mighty muscles of the professional athlete or blacksmith "are not only unnecessary to men whose occupation requires no high degree of muscular development, but are absolutely injurious." The athlete is adding to the capacity and demands of his stomach when he is piling up muscle. When he leaves off exercise, he ought to cut off the increased allowance of food which has been necessary to him, but he doesn't, and so he gets "visceral degeneracy," which is a good deal worse for him than "muscular degeneracy." Often he cannot endure a sedentary life. Thus:

"One of the greatest pugilists that America ever produced, John Dwyer of Brooklyn, quit his regular occupation to enter a counting room—he died within a year of tuberculosis. The explanation of this case was simple enough: the immense lungs which were necessarily an advantage in the prize ring fell into disuse in the counting room. Disuse meant degeneration, and degeneration meant a lack of resistance of which tubercle bacillus was not slow to take advantage. I have had under my personal observation several lesser lights among professional athletes, in whom a similar result occurred from the cessation of training."

The training habit is as hard to break, if the physician is to be believed, as the alcohol habit:

"On several occasions when I have been compelled to cease training for one reason or another, it has required many months for my system to become adapted to the new conditions."

Let the would-be athlete who has no perseverance remember the case of John Dwyer and be consoled a little. It is considerably better to be lazy than to be dead; and undertraining is more comfortable than overtraining. What kind of exercise shall we take? "Moderate," says the writer in *American Medicine*. The prescription is not very valuable. Most of us are constitutionally incapable of taking exercise regularly or of beginning it moderately. We begin violently and end quickly. And what is "moderate" exercise? We know a philosopher who for thirty years has tried to take "moderate" exercise. After many experiments he has come to this conclusion: "Keep a pair of dumb bells, a pair of Indian clubs in a conspicuous position in your bedroom. Exercise by their 'suggestion.'" This seems to be a hypnotic or Christian Science method. At any rate, it has the merit of moderation.—*N. Y. Sun.*

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PHYSICAL CULTURE IN THE PUBLIC SCHOOLS.

By Cora A. Moore.

Between physical culture, as expounded and heralded by athletes and "quacks"—and psycho-physical culture as demonstrated by its exponents, there is as vast a difference and as wide a gulf as that which separates two entirely opposite lines of education.

Physical culture, pure and simple, is oftentimes a positive hindrance, psycho-physical culture one of the most potent factors with which the world at large has to deal. The world at large, I say, because this idea of triune development must form the very basis of life and premise the first step in education; whether a statesmanship or a coal heaver's life is the individual's ambition; whether there is prospective riches or poverty ahead of the pupil.

The mind must give its direction to the body, and the body be readily responsive to express its will in order that a harmonious state of being result. A series of gymnastics in which the mind has no part is simply a set of mechanical devices for killing time or obtaining money—but for the most part, I believe, teachers who have elected to make this branch of work theirs, are really in earnest, and, particularly, as they must impart something of their own enthusiasm to those under their charge, they must, of necessity, first possess it—or else be very soon found out—for enthusiasm is not easily manufactured for any length of endurance.

There is, however, a universal need of normal development and a constantly increasing demand for methods of such in our public schools and colleges. In many of the systems now in use, particularly, perhaps, in the outlying districts, there seems to prevail a lack of consistency. This is due, probably, on second thoughts, not to the systems, but to the abuse of the system; from the very fact of which we have just spoken. The mind and body are not held to their interworkings with each other, and the pupil, therefore, loses the concentration and enthusiasm.

If teachers could be brought to a realizing sense of their own needs in this direction, it naturally would not be long ere a radical change would permeate our schools.

It is a truly deplorable fact, though nevertheless true, that fully two-thirds of the teachers placed before children as examples to be followed, do not know how to stand correctly—much less do they do so.

They teach physiology with much earnestness, with a hand on the ruler, and stomach and chest making well-nigh successful attempts to meet, while Johnny shuffles up to display his knowledge of the skeleton with the gait of a "Wandering Mike" and the droop of a man bearing the trouble of years.

Why should these things be so?

Why should round shoulders and awkwardness be allowed in the school room any more than misspelled words or other incorrect lessons? The teacher just referred to may be considered a "bright and shining light;" a valuable adjunct to the educational field; and Johnny may hold the position of prize pupil—but—and this is a very important but—if, under these existing conditions Johnny and his teacher are thus "paragonic," to what heights might they not attain, each in his own particular sphere, if he put into practice a few of the common sense principles of so-called physical culture. This is a serious subject and one for individual consideration. Physical culture—psychophysical culture, has passed the mark where it could be called a fad and become absolute necessity.—*Health.*

* *

SPANISH MEASLES, CUBAN ITCH, PORTO RICO SCRATCHES.

We have heard much of these names during the past few years, or since the war with Spain. All students of philology know that words have their history, and sometimes a very interesting one. Now take the above names, and they reveal a curious and at the same time sad condition of affairs in the countries or islands alluded to. Spain, as we all know, is a nation that has been declining for many years, and it seems that nearly everything coming under Spanish rule has been blighted. Vaccination has never been vigorously enforced in Spain, and even less so in her colonies. As a consequence, smallpox has prevailed extensively, and when our soldiers got to Cuba and Porto Rico many promptly became affected with "Cuban Itch" and "Porto Rico Scratches." To the initiated it was no mystery why those attacked were men who had not recently been successfully vaccinated.

It did not take our medical men in the army long to recognize the nature of the disease to which the above names were applied (it may be mentioned that reputable physicians have never countenanced the use of the above names), and they promptly took measures to rid the islands of the disease—that is, of smallpox—and this was so thoroughly done in Porto Rico after the island came into our control that at present "Porto Rico Scratches" have disappeared from the island. How was it done?

Compulsory vaccination in Porto Rico. Porto Rico has a population of about 960,000, and for ten years prior to American occupation, as shown by careful statistics of the Spanish, there were 621 deaths per annum from smallpox alone. As soon as the American troops took possession, the entire territory was divided into districts, and the whole population was carefully vaccinated, under the supervision of the medical officers. This work was completed July 1, 1899, and since that date only three deaths have occurred in Porto Rico from smallpox. This work was done under military regulations, and hence can be considered wholly reliable and accurate. This shows a saving of over 6,000 human lives in ten years' time, besides the great expense attendant upon the cure of the sick, comprising a much larger number, as only a certain number of those atacked with smallpox died.

This act of our medical officers was one of the most striking proofs of the efficiency of vaccination in eradicating smallpox.

Smallpox is due to a definite cause. It is not a filth disease, and is not affected by sanitation, so-called. It may occur in the best and cleanest homes, but as a rule it finds its stronghold among the ignorant and filthy, who, for one reason or another, do not vaccinate. A good home, as a rule, means an enlightened home, a home where the members of the family are vaccinated, and thus protected from the disease and exempted from a constant dread of taking it. Now here is a point: If universal vaccination was a good thing for the Porto Ricans, why is it not equally so for the American?

Book Reviews.

HOW TO SUCCEED IN THE PRACTICE OF MEDICINE. By Joseph McD. Matthews, M.D., LL.D. Louisville, John P. Morton & Company.

To medical men who keep fairly abreast of the doings of the American profession Dr. Matthews is pretty well known as a medical teacher. In his preface to this very readable and practically suggestive volume he very modestly apologizes for having complied with the request of his "boys," as he calls the members of his various graduating classes, by inserting his physiognomy as a frontispiece. The book is the result of repeated urgings on the part of his classes to put into permanent printed form the substance of familiar talks that their author has been in the habit of delivering in the closing lectures of each college course.

They have the unassuming freshness of such unconventional talks, and young graduates of every medical school in the land, as well as a majority of those whose diplomas date back for a decade or more, will find much in this volume to encourage and aid them in their daily struggle to get on in the practice of medicine.

The volume is issued in fine style, paper print and presswork being all that could be desired.

MATERIA MEDICA FOR NURSES. By John E. Groff, Ph.G., second edition revised and rewritten. Philadelphia, P. Blakiston's Son & Co., 1903. (Price, 1.25)

This second edition of this handy and useful little work has been in great part rewritten. There is a brief introduction which defines materia medica. Then follow concise chapters on *Weights and Measures, The French Metric System, Dosage, Definitions of Pharmaceutical Terms, Definitions of Chemical Terms, Classification and Description of Drugs and Chemicals, New Remedies, Remedial Preparations of Animal Origin and Toxicology.*

The position of the trained nurse has now become so important, and she is everywhere so much in evidence, that a work of this kind has become a real necessity.

Prof. Groff's work is neither pretentious nor exhaustive, and yet it is ample and carefully prepared with a view to conciseness and practical value. The contents are easy of access by means of a very satisfactory index.

THE INTERNAL SECRETIONS AND THE PRINCIPLES OF MEDICINE. By Charles E. de M. Sajous, M.D. Volume First, octavo, pp. xxv, 800, with 42 illustrations. Philadelphia, Pa. F. A. Davis Company, 1903.

Of making many books there is no end. That is, the end is not at present in sight. This old saying is no more true of general literature than of works on medicine.

Dr. Sajous is confident that another is in demand; and we are not at all sure he is not "right," as the average New Yorker usually remarks, when he means *correct,* and when he means something for which neither word is appropriate.

Without stopping to consider the broad range of the subject involved, one would think that a modest twelvemo ought to be sufficient to contain all that is essential in connection with the internal secretions.

But after sufficient consideration it will be realized that the title of this work really includes the most comprehensive survey of the underlying principles of all medical or therapeutic knowledge.

The work is appropriately dedicated to the memory of Brown-Sequard and contains a rather striking and instructive Preface and Summary of Contents.

Volume I covers the subject in its relarelations to Physiology, General Pathology, General Therapeutics and Immunity.

In all his voluminous contributions to medical and scientific literature, Dr. Sajous is painstaking, thorough and conscientious. When he says something he always has something to say that is worth listening to. This work bids fair to be his best and most important contribution to the practical side of pathologic and therapeutic lore. The illustrations are not profuse, but they illustrate. The printing and binding are in the usual, which means excellent, style of its publishers.

Progressive Medicine. Fifth Annual Series. Volume I, March, 1903. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 450 pages, illustrated. Per volume, $2.50, by express prepaid. Per annum, in four cloth-bound volumes, $10.00. Lea Brothers & Co., Publishers, Philadelphia and New York.

Dr. Frazier's paper on the Surgery of the Head, Neck and Chest occupies 127 pages of this volume, and is a valuable résumé for the use of the active surgeon.

Dr. Herrick's contribution on the Infectious Diseases is exceedingly interesting and instructive, although we are sorry to note that both the author and the editor seem determined to perpetuate the use of that silly and illogical term "malaria," as the name of a distinct disease. It would be quite as appropriate and permissible to call choke damp or coal gas diseases. It may be retorted that custom makes law as well as usage, and it looks as though "malaria" had become a linguistic fixture.

The 27 pages devoted to typhoid fever contain timely and interesting information.

Dr. Hektoen's chapter on Pathology, including Cytotoxins, Agglutinins, Precipitins, Bacteriology, etc., is one of the most important in the volume. It covers more than 100 pages, and will well repay careful study.

Dr. Turner contributes the final chapter on Laryngology and Rhinology, occupying 66 pages with a comprehensive review of advances in this field.

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THE SECRET OF WEALTH.

Fuddy—I say, do you know of anything that's good for a cold?

Duddy—If I knew of anything that wasn't good for a cold, I'd buy up all there is in the market and make my eternal fortune.—*Boston Evening Transcript.*

Notes and Queries.

Query 139. Vacation season approaches. It is somewhat puzzling to decide just where to spend the term with the best returns in health of body, mind and soul, and at the same time keep within reasonable limits as to expense. To those who really seek quiet and recuperation the popular resorts are becoming less and less attractive. Besides, in order to be in the swim at any of the fashionable localities the necessities for dress and swell details require a pretty full purse. Perhaps a good many of your readers are situated like the writer—I speak for a number of acquaintances as well as for myself—that is we have no desire for a fashionable outing, and if we were inclined that way, can not afford the cost.

We would be glad of any practical suggestions which the editor of Notes and Queries can spare time to give us to localities where Nature will get in her best work and where social restrictions and extravagant expense will not prove proscriptive.

The classes represented include doctors, with some of their chronic patients, ministers and their families, and teachers. A number of them have a predilection for either Colorado or California. Is any portion of the latter climatically adapted for pleasant and profitable summer outings? Is it not better to go there in winter? It seems to the writer that the subject can be made one of great interest to a large number of your subscribers. I was much interested in the series of papers on the Therapeutic Value of Climate, published by you last season, but they did not attempt to treat the subject from the standpoint I have outlined. J. C. B., Mich.

Answer.—Our correspondent is right. Old fashioned "Outings" have been gradually degenerating, and in their place we have, at a thousand popular resorts, an annual round of the vapidest kind of social frippery. It is anything but rest, and the word Recreation is made to mean dissipation. People go to the country, but take all the city "conveniences," effeminacies and vices with them; hence the folly of expecting to recuperate.

We are glad there is a protest, and we believe it will grow louder and more general with each coming season. Nature and fashion have been at loggerheads ever since the figleaf episode in the Garden.

As it would require more space than can be spared in a single issue to cover the points raised by our correspondent we will confine ourselves to his direct questions concerning California.

Geographically California is one of the most peculiar States in the Union. Her coast line is more than a thousand miles in extent, and her territory embraces, irregularly east and west, nearly 10 degrees of longitude. She is broken up into all sorts of unique topographic fragments by magnificent mountain ranges and detached spurs, and as a consequence affords patches of every known variety of climate, except those prevailing at the Poles and under the Equator. There are regions of perpetual frost on the summits of the Sierra Nevadas, and there are regions of torrid heat in secluded valleys remote from the coast. Within the borders of the State can be found scenery grander and more wonderful than any other on the continent outside the Yellowstone Park.

These are the merest outlines and generalizations which no tourist on a two months' vacation can undertake to verify or disprove, except in the matter of a few limited localities and details. Coming down to details, it is a popular mistake that California is exclusively a winter climate. Its winter weather is in sharp contrst with that of our eastern States, but by far the most enjoyable season for both tourist and invalids is between May and September. During these months there are no rains, no wind storms, and only enough cloudy days to break the sameness of the sunny ones. All day the uniformly cool and bracing sea-breeze flows landward at four miles an hour, and all night the reciprocal land breeze gives back a constant sigh of gratefulness to the sea. This aerating ozonic interchange is uniform without ever becoming monotonous.

But this delectable condition of the elements is true only of very limited areas. Thousands go to the State without ever experiencing it, because they do not know where to find it.

Quoting a recent author, "The culmination of climatic excellence (in Southern California) is found within the vertices of a topographic triangle formed by drawing a line from San Bernardino through Santa Barbara and San Diego and back to San Bernardino."

This is as true as are most generalizations, but it includes square miles enough to constitute a fair-sized State, whereas ideally perfect climatic conditions prevail over definitely limited areas, peculiarly situated as to coast lines, sea-currents, air currents and protecting ranges. Speaking in general terms the great Kuroshiwo, or Japan Current is the prime arbiter of the climate of the entire State, but special and accidental local causes vary its general characteristics more than any easterner can possibly comprehend. The two points at which ideal conditions reach a climax are Coronado Beach and Santa Catalina Island. The former occupies a narrow peninsula across the bay from San Diego, the latter lies a few miles off the mainland in the bosom of the Pacific. Both these points have been abundantly appreciated. Hotel del Coronado is without a peer on the continent, and "Tent City" is the only one of its kind in the world. In the former can be had at its fair valuation any luxury that this world affords; and in the latter one may live luxuriously at a minimum of cost. On one side the rhythmic ebb and flow of a surf that is never tame, and on the other, scarcely 300 yards distant, still-water in perfection for rowing, bathing and fishing.

"Tent City," as its name implies, is a veritable city of tents. There are hundreds and hundreds of tents, large and roomy, with floors, flies and awnings, and furnished with all needed camp equipments, cots, camp chairs, tables, camp stove and cooking utensils—everything needed for a week, a month or an entire season of genuine camp life, with its inconveniences all eliminated.

From Coronado as a rallying center many delightful side trips can be made. Tia Juana and the Mexican boundary line and monument are but a few miles to the southward; Point Loma, with High Priestess Tingley's Temple and some sacred acres of occult earth are easily reached; the weirdly beautiful rocks and surf-sculptured caves of La Jolla are but an hour's ride distant, Chula Vista, the Sweetwater Dam and Paradise Valley, with Lyon's Peak, Alpine, Julian, Cuyamaca Peak, Stonewall Mine, Warner's Hot Springs and dozens of other mountain retreats, as wild as they were before Columbus poked his homely nose into West Indian waters.

Only a little less favored are the several coast resorts near Los Angeles; Redondo, Santa Monica and Long Beach being the principal of these.

The coming season is to be by odds the finest in Southern California for the past decade. For the first time in years the rainfall has been exceptionally generous, and as a result the whole face of Nature will wear its most inviting and benignant smile. Orchards will make phenomenal growth, and wild flowers will bloom in such profusion as to astonish those who have never before witnessed Nature's wantonness under semi-tropic suns.

There are several routes, the one having the fewest accidents and discomforts to its discredit being by odds the Santa Fe. It is also shortest and most direct, in fact the only road that runs through to San Diego without change, other lines ending at Los Angeles, 125 miles to the northward.

Query 140. Is there in the market any reliable preparation of the glycerophosphates, and if so, how are they used in medicine?

G. L. G., Idaho.

Answer.—There are numerous preparations of the glycerophosphates being advertised,—probably any one of them is "reliable," as far as its chemical composition is concerned. As a special nutriment, these preparations have a legitimate place in cases in which there is a lack of phosphates in the food. They should always be used in small quantities and with caution, since excess of phosphorus in the system becomes a dangerous irritant. When the diet is properly selected there is usually no occasion for phosphates.

Query 141. Why does abstaining from drink two hours before and two hours after dinner have the effect of reducing overweight?

J. K., N. Y.

Answer.—In addition to his inquiry this correspondent says, "My explanation is that without drink we eat less."

This is certainly a logical reason but not the only one. Water is not only itself a food, it is very essential to the primary process of digestion which is hydration. In its absence fat-forming foods are less thoroughly and less completely utilized.

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A PHASE OF THE TRACHOMA PROBLEM IN THE PUBLIC SCHOOLS.

By Chas. H. Burr, M.D.
New York.
Assistant Surgeon, Manhattan Eye and Ear Hospital; Attending Physician, Diseases of the Eye, Northern Dispensary; Assistant Attending Physician, Nose and Throat, University and Bellevue Hospital College Dispensary.

The excitement attending the first efforts of the Health Commissioner to stamp out Trachoma from the public schools has pretty much died out, thousands of cases have been treated, but the medical examiners are just as busy as last September, the surgeons in the clinics are still overworked, a large municipal hospital devoted to this disease is in full operation, yet a glance at the figures below would indicate that there has been no decided falling off in new cases admitted.

The figures are taken from the records of the Northern Dispensary eye clinic in charge of the writer and from the records of cases assigned him in the Hepburn-Oatman Clinic of the Manhattan Eye and Ear Hospital, and include the totals of the Clinic.*

NEW TRACHOMA CASES ADMITTED.

	Northern Dispensary.	Hepburn-Oatman Clinic.	Hepburn-Oatman Clinic Totals.
September ...	5	3	52
October	10	3	71
November ...	16	7	44
December	62	8	64
January	54	10	70
February	30	2	24
March	63	14	46
	240	47	371

March is three days longer than February, to be sure, but that will hardly account for the large increase in the figures—33 more cases at the Northern Dispensary and 22 more cases at the Hepburn-Oatman Clinic.

Let us examine for a moment the routine employed in these Trachoma cases. The Medical Examiner, commissioned by the Board of Health, visits each room of each school under his charge once every week, during the term, and inspects each pupil's eyes as he passes along the line. Any suspicious case is more closely examined and, if found to warrant it, the following card with which we are all tiresomely familiar is made out and the pupil is sent home.

DEPARTMENT OF HEALTH,

BOROUGH OF MANHATTAN.

New York,..............190....

Name.......................*Age*......

Address.................................

IS ORDERED TO DISCONTINUE ATTENDANCE at

School No........, *located at*..........

REASON..................................

....

Medical Inspector.

---

* This clinic is one of four in the Manhattan Eye and Ear Hospital, and the figures, multiplied by that number, will give approximately the total number of cases for the entire hospital.

The following appears on the back of the card.

NOTICE TO PARENTS.

The disease mentioned on the other side of this card is a contagious affection and liable to be transmitted to other children. The child should receive prompt treatment by any physician (or at any dispensary), and should return to school ...., 19...., for re-examination by the Medical Inspector of the Department of Health. If found free from contagion at this time, he may resume attendance at school.

If the pupil on returning shows by a dispensary card that he is undergoing treatment he is permitted to re-enter school.

I judge that on receipt of this card the parents in not a few cases proceed to hold an indignation meeting and vote to take no further action in the matter, but fortunately a larger number, although they hold the meeting, do bring the child to a dispensary, or clinic, very incredulous however as to the child having any trouble at all—"always a healthy child"—"never had any trouble with his eyes," and, "if I have got to have this child vaccinated again I will take her out of school first," and so on, with variations, over, and over again.

It is evident that in this skeptical frame of mind the words of the surgeon fall on unwilling, if not on deaf ears, and it is not a matter of surprise that the operation is refused in many of the most urgent cases, or the treatment is carried out, if at all, in the most half-hearted way, while many of the cases are utterly neglected. Many make just one visit to the surgeon and let it go at that. A certain percentage of the children whose treatment has been begun in good faith by the parents, play truant so far as the clinics are concerned and while parents and teachers suppose them to be at the clinic they are putting in a less profitable, but far pleasanter hour with their chums on the streets.

The great question is how many of the 29,197 cases so far sent from the schools by the Board of Health have been cured? I cannot answer this question and, unfortunately, no one in New York can answer it.

Of the cases under my own observation, 17 of the 240 at the Northern Dispensary were operated upon, 1 at home, 15 at the Manhattan and 1 at Gouverneur Hospital. Others were sent to the latter Hospital, but in the absence of any report from the officials, or from the patients I do not know how many were operated upon there. These operated upon may be pronounced cured, since none have ever returned showing any evidence of Trachoma.

Of the 371 cases at the Hepburn-Oatman Clinic at the Manhattan, it is impossible to tell just how many were operated upon, but the total operations in the Hospital, in all four clinics were as follows: Sept., 58; Oct., 99; Nov., 90; Dec., 94; Jan., 126; Feb., 58; Mar., 124; total 649.

Of the remaining cases no one can tell just how many were cured by treatment at home, with the addition of local applications at the clinics, but the number that I have pronounced cured and directed to discontinue treatment is very small compared with the total number. Many discharge themselves when well advanced towards a cure, and are seen no more for a while; many come only a few times and very irregularly, and some appear once only.

From the above it must be evident that while officials of the Department of Health are detecting the disease and sending pupils from the schools with great solicitude, and the attending surgeons of the clinics are doing whatever comes to their hands to do, with equal fidelity, there is a weak point in the system, in that many cases are not properly treated, that these remain a menace to others and will necessitate a repetition of the same routine of dismissal next fall, another entry in some dispensary or clinic, treatment again laid out, with the same chances for evasion and failure to be completely cured.

In contrast to this is the method employed in the parochial school of St. Joseph, Waverly Place and Sixth Ave., under the medical supervision of my colleague, Dr. McKechnie. He visits the school regularly, every morning, and personally treats each case. At the start, about Jan. 1, these cases numbered 212, and he has an order from

Father O'Flynn, the pastor, to "stamp out the disease, if it takes all summer." It will not "take all summer" under this regular system, for at this date, March 31, 1903, the 212 have been reduced to 28 pupils now receiving treatment every day, with good prospects for a clean bill of health for the school within a month or two; a most satisfactory result.

This system of coping with Trachoma could be followed by the City by employing oculists to visit each school every day, every other day, or even less frequently, treating all these children on the spot, and thus relieve the overburdened clinics and permit more time to be devoted to the other cases which have suffered more or less, from the rush of this Trachoma work. There may be objection to this plan by the authorities on the ground of expense, but the children's eyes are of more value than many objects of municipal expenditure—for example, even the schools themselves, for of what value is the education they provide in comparison with the eyes of the pupils? The use of the old Gouverneur Hospital for operations would continue as at present, but the heavy work now done in the clinics would be done right in the schools.

If this rather ideal system can not be inaugurated, I believe the adoption of the following style of card by the Department of Health, with the co-operation of the physicians and teachers, would greatly strengthen the weak spots I have pointed out in the present system.

Name .... Clinic or
..............................Dispensary.
Case in charge of Dr. .... must come for treatment ..... times a week. The attending physician should stamp the date of each visit and his own name in order that the teacher may know the child is having regular treatment.

....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....

Patient may attend school.........M.D.
Patient discharged—cured..........M.D

Scholars stand in a good deal more awe of their teachers than they do of any dispensary doctors, for they may "hook Jack" from the clinic and the doctor never will send after them; but if they play truant from school the teacher sends a truant officer after them in short order.

This blank has the following advantages. (1) It shows the name of the clinic or dispensary where the pupil is being treated. (2) The name of the attending physician. (3) How many times a week it is necessary for the child to report for treatment. (4) It has a blank certificate that the child may attend school. (5) A blank certificate that the child is discharged cured, and, (6) The main point of all, blanks for entry of the date of each visit with the name of the physician, or institution. This last could be stamped on the card at the expense of only a few seconds of time, and if the Department adopted the card it would probably adopt and furnish a uniform style of automatic dating stamp, with the name of each clinic upon it. By means of this card properly stamped the teacher can tell any time if the pupil is attending the clinic as often as the card calls for, and this very fact will be a powerful incentive for the child to go regularly, and regular visits to the physician will mean more regular treatment at home.

Some examining physicians, or Inspectors have lately hinted at this system of supervision by giving the pupil in particularly bad cases directions to have the dispensary card dated and signed by the attending physician, but this takes time when there is no stamp handy, and quite often the dispensary card, or ticket is stamped by the clerk at the desk, where they are issued, who may not know whether the child goes into the clinic, or not, or submits to treatment if he does go in.

With the stamp at hand the attending physician would lose no time and I feel quite confident every one would be glad to have this card plan adopted for the satisfaction of systematically following up these cases in place of the irregular visits and treatment as now.

P. S.—Since writing the above I am informed by Dr. Bensel of the Health Department, who very courteously supplied me with data and information, that one-quarter of the exclusions are of old cases, or re-exclusions, where the proper treatment has not been received or accepted, a strong confirmation of the point I have made as to the evasions practised, and of the practical value of the two suggestions for facilitating the work I have submitted.

He also stated that a new Hospital for Trachoma would be established in the northern part of the City.

115 Convent Ave.

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WHITHER AWAY?

By Samuel S. Wallian, M.D.

The season of Outings is again at hand. The Summer vacation has become a vital integer in the annual program. The Winter hegira is indulged primarily as a luxury, secondarily as an escape from climatic inhospitality. Not to go somewhere for a shorter or longer period, during the dynasty of the dogstar is to confess either lack of judgment or very peculiar circumstances that bar the indulgence. In either case the situation is accepted as an inevitable privation and next neighbor to a calamity.

Even if one does not go a dozen or a hundred miles it involves a change of air and surroundings, of landscapes if not of latitude, of browsing grounds and bills of fare, change of water and wearing apparel, and the sum of these changes amounts to a change of climate.

Changer du climat est naitre a une nouvelle vie, says the French philosopher, and in this country we transpose it into "a change of pasture makes fat calves."

In the United States it is only necessary to cross a county line, or the boundaries of an Assembly district to experience a moderate change of climate. And so the summer visitor and vacationist has come to be a part of the landscape in almost every rural locality that boasts a bit of topographic picturesqueness or poetic tradition. As a consequence, catering to the wants, whims and necessities of the annual eruption of city vagrants is rapidly developing into a fine art, and is already as much of a trade as raising potatoes or hatching spring chickens.

As another consequence the outing habit has not been exempt from the changes and evolution that pertain to other concerns of modern living. With a certain set the old fashioned outing has been voted passé, if not even vulgar, but it is a question whether the new fashions in the modern vacation field are an improvement on the old. The necessity for sane intervals in the lives of all who indulge in the modern madness called business is universally conceded; but to this class the word Recreation no longer means Rest. It simply implies a shifting of the stage settings, and the announcement of new cues. Instead of providing hampers, mess chests and camping paraphernalia, too many vacationists, nowadays, accept it as a conventional necessity to squander small fortunes every summer on wardrobe trunks and wearing apparel, in order to keep pace with other patrons of fashionable watering places. Instead of tents, cots and campstools they give their entire attention to the multiplication of even more stunning costumes than are called for in the city.

Certain others delude themselves into the belief that they are running away from society and the conventionalities when they flock with other feverish thousands to any of the annually multiplying fashionable resorts of the North Woods, New Hampshire, Bar Harbor or the Berkshire Hills. To a goodly number this annual dress rehearsal has become a Vanity Fair that is perfunctorily tolerated rather than enjoyed. They begin to realize that it is no longer going to the country, or getting back to Nature. In fact at the fashionable resorts Nature and the picturesque have been banished to make way for the tip-compelling bell-boy, the electric incandescent and the omnipresent push-button.

To those who go for the sake of or at least demand these arrogant exploitations of "all modern conveniences," why, nothing else will satisfy, and so they are promptly and flauntingly provided. Such people really have no desire to get away from the world, the flesh, the devil and Mrs. Grundy. This list includes among others the self-complaisant chaffeurs, the provincial golf-champions and the professional athletes, since all of these are either on exhibition or "on the road," during the season.

Other groups are in search of social adventure, shallow sensation, or fashionable flirtation. The result is that many of the oldtime resorts are being turned into ragtime music stands, and once picturesque and restful vacation grounds are transformed—or improved—into settings for open-air vaudeville. Of course, those who prefer vaudeville to vacation will persist in joining the ranks of the sham vagabonds, but their vacation experiences ought not to be called by the misleading name of "outing."

The number of those who are tired of cheating themselves by pretended journeyings to Nature, when they go into "camps" that are choked with "civilized" appurtenances, and "cabins" that are full of "all modern improvements," is steadily multiplying, and the search for unencumbered and undegenerate fields is annually on the increase. Nature still invites all her real lovers to full and free communion with her tonic Trinity—Soil, Sea-air and Sunshine, for the control of which the trust schemers find it difficult to arrange a monopoly. It would compel them to buy up all the waste places, which isn't feasible and wouldn't be profitable even if it could be accomplished.

To even mention the numberless localities where those who desire it can secure a wholesome and unostentatious quiet, can escape society and the conventionalities, would exhaust a volume. One such, unique in character and little known, especially in the East, except in a very vague and general way, basks in the tempered, congenial and ozone-generating sunshine of the far Southwest. And this sunshine is sunshine that can be counted on to put in its appearance every day in the season; yet is never chargeable with the scorching, enervating characteristics of our Eastern sun. It has good manners, is always softened by sea-breezes that are bracingly cool, and is never depressing on account of the presence of excessive humidity.

The nearest approach to a climatic paradise on this continent as briefly adverted to in Notes and Queries in May GAZETTE, is embraced within the boundaries of a triangle whose vertices are represented by Santa Barbara, San Bernardino and San Diego. An irregular mountain range acts as an effectual barricade against "northers," and another intercepts the ingress of the suffocatingly dry air from the hot desert to the eastward. It is open to the sea and the sun. Its soil is for the most part a decomposed red granite, than which nothing can be more perfectly aseptic and absorbent. Day and night it is fanned by ozonic zephyrs that never repent of their kindly offices by turning to tornadoes. There is but one breach in the barricade which protects the eastern border—that of the Santa Ana Cañon, through which there is occasionally—that is, once or twice a year—an eruption of hot air from the scorching Salton desert, and sometimes this is so laden with sand that it becomes a mimic simoon. But it is of short duration and reaches but limited areas.

Those who have never visited this region, or who derive their knowledge of the state from a few weeks sojourn in San Francisco, or Los Angeles, are in the habit of speaking of "the climate of California." The expression is altogether too vague. California has more climates than she has counties. Some of them shade into each other with but slight contrasts. Others vary so decidedly that they might be taken to represent latitudes widely separated, instead of being within easy reach of each other. This occurrence of climate in patches is to some extent true of all portions of the country, but it is especially true of Southern California. Even this limited triangle of alleged climatic perfection is made up of patches, between which are many arid and uninviting stretches.

To particularize as to localities within the charmed area, Santa Barbara, the northwest vertex, and Coronado Beach, the extreme southern, carry off the prizes as to thermometric uniformity and equability, from year's end to year's end; and between these two points lie Santa Monica, Redondo, Long Beach, La Jolla and Ocean Beach. Each of these has its peculiarities, and all are more or less charming. Coronado stands first in the matter of enterprise, having the finest tourist hotel in America, to which as its Annex and auxiliary it has added the "Tent City," mentioned in the May number, as already stated. It is a novelty so rare, even in this age of novelties, that it has no duplicate in the world. It is a refreshing revelation as to the possibility of combining camp life with civilization, sentiment with solid comfort, conventional conveniences with utter freedom. The rest-seeking denizen of Tent City, with a fresh sense of awe and admiration, can watch the golden ball of day glide blushing to his nightly couch in the placid Pacific, sleep to the music of the sounding surf, and wake to watch the same sun push himself up through the purple haze that shadows the peaks of the Cuyamacas in the early morning. He may bathe in the breakers that roll up and land their freight of shells and sea-mosses within a hundred yards of his tent, on one side, or in the still water of the Bay but little further away in the opposite direction. This mere tongue of land is the Darien that connects the almost-island with the mainland. One can drive the length of it in an hour, the restless surf booming and flashing into foam on the right side, and the silent, shimmering waters of the Bay glimmering on the left.

It is camp life, and yet every day enterprising Chinamen, behind their buckskin ponies, bring tropic luxury in such profusion—luscious fruits in untellable variety and so fresh from the tree as to make the best specimens you have ever tasted before seem stale and insipid, and vegetables so crisp and full of flavor that you can not make yourself believe they are of the same species of those you have been accustomed to in the East, that bewildered astonishment is a tame description of your state of mind.

There are plenty of side trips, if one craves variety. Sweetwater Dam and Valley, Tia Juana (half in the U. S. and half in old Mexico), the caves, rocks and beach of La Jolla, Point Loma, with its Temple of the Occult and Tingley School of Esoteric Brotherhood, Ocean Beach, Alpine, Julian and other Cuyamaca Mountain resorts, Warner's Hot Springs, Buckman's Soda Springs, Lakeside and Lyon's Peak.

The journey to this new vacation field is a rather long one, but nothing to what it was a few years back. The limited trains over the Santa Fe route from Chicago cover it in three days, and special excursion rates make it very reasonable as to cost.

* *

SENATOR HOAR'S CREED.

My creed in general is this:

1. I believe that the great things that have been gained in these countless ages in which men have been dwelling on this planet—and I think that we have gained great things—have been accomplished by a very slow growth indeed. So let us have the patience of God.

2. I believe that things are tending toward what is good, and not toward what is bad.

3. I believe implicitly that the desires of the American people are for justice and righteousness, however much they may be misled at times. The permanent things are stars and the sun, and not the clouds or the dust.

George F. Hoar.

* *

ACUTE INDIGESTION.

By E. Palier, M.D.

This ailment, though peculiar to infancy and childhood, yet attacks people of all ages. Indeed, few take particular care to avoid it, thinking it to be simply a transitory affection without any consequences.

But this is not so, and as Prof. Hayem says[1]: "The human stomach, unlike the stomach of the dog, owing to earlier errors or perhaps to inheritance is very vulnerable." But I may add to this that even the stomach of the dog is quite vulnerable, and the fact is that dogs frequently die of indigestion and cramps, in fact, the main cause of death of carnivoræ is acute gastro-intestinal trouble.

In this paper I shall not consider those acute affections of the alimentary canal which are characterized by marked pathological lesions, nor the chronic ailments, as it would be undertaking too much within the limits of an article. But I shall deal with the affection commonly called acute indigestion, which is supposed to pass over without leaving any permanently bad effects. It is however very hard to draw a sharp line between the affections coming under the heading of gastritis or gastroenteritis and those which are called simply indigestion and are supposed to have no marked pathological lesions. Any affection of the alimentary canal though transitory in nature, and apparently not very serious, may be followed by some pathological lesion, which will be transitory or remain permanent, according to the gravity of the attack. Thus, Beaumont noticed in Alexis St. Martin, the man with a permanent fistula in his stomach, owing to an accident, that after indiscretion in eating or abuse in the use of ardent spirits, a livid erythmatous redness of the gastric mucous membrane occurred. At other times there was present considerable muco-purulent matter, with oozing of grumous blood, "resembling the discharge from the bowels in cases of chronic dysentery."[2]

It must also be borne in mind that the ingestion of an excessive amount of solid food gives rise to an attack of acute indigestion, but also the partaking of excessive quantities of liquids, even of a mild nature is liable to do the same.[3] Indeed, in my own experience I have seen the liberal indulgence in liquids like tea, coffee, soda, etc., especially in connection with fruits, cakes, etc., give rise to an acute attack of indigestion, though meat, which is supposed to be the main mischief-maker had not been partaken of at all. If, however, an excessive quantity of flesh, with other articles of diet, has been ingested, and if in addition irritating drinks have been imbibed in great quantities, and if the flesh was deteriorated, these are, of course, all the elements necessary for bringing about an acute attack of indigestion, which in some cases is apt to terminate fatally.

The usual course of an acute attack of indigestion is as follows: The patient, usually a man, for women are less liable to commit indiscretion in this regard, goes to bed in good spirits after a hearty meal. In a few hours, usually the early morning hours, he is awakened by a feeling of malaise, lassitude, and some nausea or retching. There is also some colicky pain in the abdomen. In some cases vomiting and diarrhea set in, the vomited matter containing undigested pieces of the previous repast, and the diarrhea is apt to be very profuse and exhausting. In other cases there is only vomiting and no diarrhea, and vice versa, or there may be only nausea, and no vomiting. The duration and termination of the ailment depends on the condition of the patient, the number of attacks and the severity of the malady. In debilitated subjects or in those suffering from a serious organic lesion, such as heart, kidney, or liver trouble, it may terminate fatally. In robust persons when attacked the first time, complete recovery is the usual result, though dilatation of the stomach is sometimes apt to occur.[4] In some cases there is no elevation of temperature, and the pulse remains normal, in others, where the food was of bad quality there are symptoms and signs of a toxæmia, and the disease assumes a serious aspect. Sometimes also the temperature is apt to be subnormal, the pulse small and intermittent, and unless energetic measures are resorted to, collapse and death may follow. Thus the severity of an acute attack of indigestion may vary from the manifestation of some nausea with slight colicky pains, which pass off with very little medication, up to the most distressing symptoms, and dangerous signs which do not yield to medical treatment and terminate fatally.

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[1] Bull. et Mem. Soc. Med. d. Hopit. Paris, 1893, 3 T x, 366.

[2] Pepper, *System of Medicine*, Vol. II., p. 498.

[3] *Traite des Maladies de l'Enfance*, Vol. II., p. 498.

Another manifestation of an acute attack of indigestion, occurring sometimes in children, and which is apt to mislead the layman as well as the physician is cyanosis and difficulty of breathing, resembling laryngeal obstruction encountered in connection with diphtheritic sore throats.

Sometime ago I saw a child, a boy three years old, who was cyanosed, and whose breathing was so labored and difficult, that it resembled an obstruction due to laryngeal diphtheria or to a foreign body walled and lodged in the air passages. The fact however that the boy went to bed in good health after eating heartily at table and got up in the middle of the night with these distressing symptoms, and that on examination no sore throat could be seen, made me believe the case to be one of laryngeal spasm due to an overloaded stomach. Indeed a good emetic removed all the distress and the child was well on the following day.

As to prophylaxis, this has been preached to mankind from time immemorial, unfortunately without any marked results, namely, be abstemious in food and drink. As has been said above, not only are alcoholic drinks and flesh liable to cause mischief, but apparently very innocent articles, being so considered because of their mildness, will also cause harm if partaken of in excess. The best rule is to get up from table while feeling still somewhat hungry. Never eat to the point of satiety and fulness. Many sudden deaths are according to Prof. Brouardel due to the inability of the kidneys to get rid of the suddenly accumulated toxins brought about by the ingestion of a hearty meal, though on autopsy no organic lesion of the kidneys or of other vital organs can be demonstrated.

The treatment consists in abstaining from all food for a longer or shorter period according to the degree of the severity of the attack. While the attack lasts no food whatever should be ingested by the patient, as it will only add fuel to the malady. Nature is trying to get rid of the excessive ingesta and its work should not be hindered by adding fresh matter to be gotten rid of. It must be borne in mind that in an attack of indigestion the powers of absorbtion are impaired, and what is absorbed goes to poison the patient and not to strengthen him and to sustain his life. During the height of the vomiting and diarrhea fluids cannot usually be retained by the patient. I have noticed that domestic animals, such as the dog and the cat, when sick with an attack of indigestion abstain entirely from food and drink while the attack lasts. I have seen them usually get well under such treatment, and it must therefore be good treatment. But we can aid nature to get rid of the excess by administering a purgative. This is often had recourse to by the laity themselves, castor oil or magnesia being used before the arrival of the physician. An enema can also be administered in some cases with advantage, especially in affections of the lower bowel. But on no account should the diarrhea be checked suddenly by the administration of sedatives or astringents, as mischief is apt to result. In children I have seen convulsions follow the sudden checking of a diarrhea by the administration of an opiate; and in adults symptoms of toxæmia are apt to follow such treatment.

When the pains are very severe a hypodermic injection of morphine is sometimes indicated, but when possible, opiates should not be used during the height of the attack. I have experienced the effect of morphine under such conditions upon myself. It relieved somewhat the griping pain, but instead a dull, gnawing pain set in, with dryness of the throat, headache, lassitude and a feeling of fulness about the abdomen, and extreme distress. During the attack I prefer antispasmodics like belladonna, spirit of chloroform, or Hoffman's anodyne, using them sometimes in combination in proportions suitable to each case.

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[4] Loc. Cit. *Traite des Maladies de l'Enfance.*

When the vomiting has lasted for some time and only mucus is brought out and no longer particles of undigested food, bismuth in large doses acts as a specific. Some time ago I saw a patient, a boy of ten years old, who had been vomiting for about ten days. In my presence he vomited several times, the vomit consisting of glairy, frothy mucus. The patient had been unable to retain anything on his stomach, and was wasted to a skeleton. I exhibited bismuth subnitrate in fifteen grain doses every two or three hours; the vomiting was controlled in twenty-four hours, and the patient completely recovered.

When the diarrhea has lasted some time, and especially when it is watery and very exhausting, then an opiate is indicated. I usually combine opium with bismuth and salol, though there be no vomiting, as salol has a deserved reputation of being an intestinal antiseptic, and it thus counteracts the putrefaction which might ensue from the arrested discharges accumulating in the intestines, owing to the administration of opium. I have seen in myself as well as in the cases of other patients that salol in combination with opium counteracts a great deal the fulness and the other unpleasant symptoms following the checking of diarrhea by opium alone.

In proportion as recovery sets in, the diet can be increased; but a repetition of acute attacks of indigestion must be positively guarded against, otherwise if the patient be not carried off, chronic indigestion due to various lesions of the gastro-intestinal canal will set in, with the wretchedness and misery usually accompanying such affections, which make life unbearable to the sufferers and themselves unbearable to those who come in contact with them.

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HOW TO DRINK.

By I. F. Purviance, M.D.

Steubenville, Ohio.

"How to Drink Water" is the title of a short article in the last issue of your journal, and it being a subject that evidently does not receive the attention that its importance deserves, I conclude to offer a few thoughts in regard to it. A strange fact to be first noticed is, that an act so frequently performed as that of drinking should, after an experience of six thousand years by the human race, be so improperly accomplished as to evoke criticism for both social and scientific reasons. But as a matter of fact the act of drinking is commonly performed with no thought of how it should or should not be done, and as a result we have a common habit prevailing for which there is no justifiable excuse, that is disgusting to observe, and dangerous to the welfare of its victims.

Daily opportunities exist to observe those whose appearance would suggest good taste and cleanliness in their general habits of living, so to drink from a cup at meals, or a glass on other occasions as to provoke a nausea in any sensitive stomach. The vessel containing the fluid to be drank, instead of being placed *to* the lip not higher than is reached by the external integument, is, according to custom, carried *over* the lip into the mouth. With the glass or cup thus interposed, the lip, with its inner surface resting against the exterior of the vessel, will be found to cover a space vertically of ¾ to 1¼ inches, by at least 1½ inches, around the glass, the space differing to an extent corresponding to the size of the lip and the extent to which the vessel is placed within the mouth. Where different applications are thus made it is observed that a very few are required to extend around the glass unless by accident they happen to be repeatedly near one locality. This part of the glass is just where the lip of the next person using it would rest if he should drink in the common way. Now, let us consider the result of these repeated applications of the lips of individuals to glasses for common use in waiting rooms, cars, etc.

The lips referred to may be those of the white, black, red or yellow man. To whatever race or condition they belong they are constantly covered with saliva from the glands of the mouth and mucus from the lining membranes.

These fluids are also the common medium for floating all impurities from the mouth. The debris of decayed teeth, the discharge from diseased gums or ulcerated lips, the particles from a coated tongue, as well as the epithelial coverings of the mouth that are constantly being removed, may all be found in this secretion. By way of variety, if the individual should have a filthy expectoration from cold, its appearance must be expected in this varnish for the glass; or it may be thickened and rendered more paste-like by the presence of pus corpuscles from tuberculous disease of the lungs, or syphilitic ulceration of the throat. The horrors of this conception are not complete without the aid of a microscope to disclose the realities to be found in a mere specimen of this material that is known to be carried from one lip to another through the medium of a glass, in the careless habit of drinking.

How often I have sympathized with an innocent child as the mother would hand it a drink from a glass in public use, one that had doubtless been applied to a hundred lips since it had been cleaned. How pitiful is such a scene, as the little lip is extended over the margin of the glass to become smeared with filth that is sickening to contemplate. I have often noticed individuals that through some vague conception of cleanliness would wash out the inside of a glass, in public use, while, in fact, it was there that it least needed it, and then drink from it, well introduced in the mouth, with the lip spread over the outer margin, from which it was wiping a coat of filth too obnoxious to think of.

Nothing but the education of careless people to a sense of the realities embraced in such habits will ever overcome the repugnance and dangers of such scenes in daily life. To this effect I would dedicate these thoughts to the Hygienic Gazette, as a journal devoted to the interests of mankind in teaching the great laws of health and life, hoping they may influence such of its readers as know themselves to be addicted to this habit, to a better observance of needful care. With such care for only a short time, a thoughtful effort to drink in the proper way will no longer be required. The habit of drinking from the vessel applied below the margin of the lip instead of over it, will soon become an instinctive and automatic procedure, and will persist in life as an evidence of refinement and a safeguard against the mouth being made the receptacle of filth that is often populous with the germs of fatal disease.

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CAUSE OF HIS VIGIL.

For two weeks a gray-haired man has haunted the block in West Thirty-fourth Street, where brownstone dwellings are being torn down because of the march of trade. Not less than two hours daily this man paces the sidewalk and watches the process of demolition. To an inquisitive inquirer yesterday he admitted: "In an upper room in that house opposite my daughter was born fifteen years ago. When she could toddle to the window she waved a kiss every morning to me as I stood on this spot. When the laborers reach that room I mean to buy the windowsill. My baby is dead."

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PREVENTION OF DISEASE INFECTION BY MICRO-ORGANISMS THROUGH THE MOUTH AND NASAL CAVITIES.*

By Robert Reyburn, M.D.

The study of the life-history of micro-organisms has thrown great light on the causes of many of our infective diseases and their proper treatment; many of them are composed of some small particles of germinal matter, or protoplasm, without either the nuclei, cell walls, or cell contents, that are found in what are ordinarily known as cells, in living organisms. Before our eyes and on the stages of our microscopes, we can study them to our heart's content. We can watch them multiply either by the development of ova (or eggs), by gemmation (or budding), by fission (or division), or by the production of alternate or successive generations.

The first question to be answered concerning these microscopic organisms is the natural query: Whence came they? To this question we can give no answer.

Just as impassable as it was before the invention of the microscope, is the yawning gulf that divides living protoplasm from dead matter. We can start on our argument to-day with the axiom, *Omne vivum ex ova* (every living thing comes out of an egg), with just as much assurance of its truth as when it was first enunciated by the great philosopher. Yea, even more so, for time and increased knowledge have only accumulated evidence of its truth.

When the biologist of to-day makes a pure culture of a living organism, and places it with the proper precautions, in a pure medium or soil fitted for its growth, he invariably finds, and expects to find, the same organism growing under his eyes, or on the stage of his microscope. He no more finds, or expects to find, a different organism resulting than a horticulturist would expect to find grapes growing upon an apple tree, or thistles upon a plum tree. In regard to the theory of spontaneous generation, or the spontaneous formation of living organisms, from dead matter, it is only necessary here to say, that it is almost universally abandoned by all biologists of any eminence. This theory has been destroyed by the labors and investigations of many scientists, more especially by the elaborate and long-continued experiments of Professor Tyndall, of England, Professor Pasteur and others.

The life-history of microrganisms when considered with regard to their rapidity of multiplication, presents an interesting field of study. It is very probable, and indeed very certain, that the study of a bacterium and its progeny for a few days gives us a series of generations more numerous than have existed among the higher classes of animals since the earth was fitted for their habitation. The rapidity of the growth and multiplication of bacteria is as far beyond the capacity of the human mind to conceive as it is to attempt to measure the distances of the stars in the heavens or to count their numbers.

Professor Buckner, of Germany, states that the time usually required for one microbe or germ to become two, by the process of division, is fifteen minutes. At this rate it is computed that a single microbe would produce in twenty-four hours a million times the present human population of the earth. Professor Law estimates that a single bacterium dividing and redividing would produce in forty-eight hours, if undisturbed, 281,900,000,000, which in bulk would fill a half-pint measure—all produced in two days from a single germ measuring the 1-150000 part of an inch.

Pathologic bacilli are just as numerous when found, and divide as rapidly. Professor Böllinger states that a cubic centimeter (about ¼ of a fluid dram) of tuberculous sputum (from a case of pulmonary tuberculosis) contains from 810,000 to 960,000 tubercle bacilli.

In an ordinarily copious expectoration the tuberculous patient deposits nearly 1,000,000 bacilli into his cup, and on an average in one day he throws 30,000,000 or 40,000,000 of these microorganisms into the world. Thus at a low estimate, 10,000 tuberculous patients now living in New York City, daily expectorate some 300,000,000,000 tubercle bacilli.

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* Read before the Med. Soc. Washington, D. C. Reprinted from *Am. Medicine*.

The bacilli which cause diseases therefore exist in every breath of air we draw, in the articles of food we consume, and in much of the water we drink. Uncounted myriads of them are to be found in the digestive apparatus of persons who seem to be in all respects perfectly healthy. How then do we escape the attacks continually made upon us by these destructive bacilli and bacteria?

It must be perfectly apparent that the fluids or tissues of the body must have the power to destroy and render inert these poisonous microorganisms; otherwise none of us could live. Where does this power reside? Metchnikoff thought he had discovered where when he elaborated the doctrine of phagocytosis, or the destruction of bacteria and other microorganisms by the leukocytes or white corpuscles of the blood. Nutall, Buckner, Lubarsch, and in this country, T. Mitchell Pruden and many others, have shown conclusively, however, that the power of destroying the bacteria, etc., resides not only in the leukocytes, but in the blood serum. This preservative power of blood serum explains why it is that the human body is able to resist the destructive action of the innumerable poisonous microorganisms which continually surround us. There exists, however, two conditions which have a most powerful effect in increasing or diminishing power of the blood serum to destroy these poisonous microorganisms. The first of these here to be mentioned is the high or low condition of the health of the individual at the time of receiving the infection. If the individual is in a high state of health, his blood serum is then capable of destroying an immense number of these pathogenic organisms, and he is thus rendered immune to the disease.

Any condition, however, which impoverishes the condition of the blood and tissues of the body, impairs this protective power. Thus anemia or any malnutrition existing in children from improper diet or bad hygiene, renders them an easy prey to the onset of infecting microorganisms.

The indiscriminate and too abundant use of candies and cakes by children cannot be too greatly deprecated. We all know that pure sugar, moderately used, is not only harmless but wholesome as an article of food. But when mixed with injurious and sometimes poisonous coloring matters, such as are found in colored candies, its use should be absolutely prohibited to children. The admixture of glucose with the sugar used in candies is also indirectly an element of danger on account of the possibility of its producing arsenic poisoning. Of course no arsenic is ever intentionally mixed with glucose, but it has been found to exist as an impurity in the sulphuric acid which has been employed in the manufacture of glucose.

Probably all of our readers are aware of the large number of deaths which have lately occurred in England, and which have been found to be cases of undoubted arsenic poisoning, due to the contamination of the glucose used in that country in the manufacture of beer.

Pure sugar is perfectly harmless to the teeth of children, but when given to them in the form of candies it produces an acid condition of the fluids of the mouth which rapidly produces decay of the teeth. A mouth filled with decayed teeth is always in a septic condition. These septic fluids of the mouth have not only lost their bactericidal power, but are continually being swallowed and passed into the stomach and aid in infecting the stomach and intestinal canal. Many cases of chronic dyspepsia and gastrointestinal catarrh are due to the chronic infective condition of these organs thus produced.

All of us are familiar with the horrible odor of the breath of persons who have a mouth full of decayed teeth. These persons come to us suffering from aggravated forms of dyspepsia or gastrointestinal catarrh. We often cure them not so much by medication as by sending them to seek the aid of a dentist. After the dentist has extracted the roots and furnished properly fitting teeth, the cure of the patient is generally credited to the improvement in his mastication. It is not so much due, however, to that cause as it is to the destroying of the flow of microorganisms which have been poisoning the stomach and intestinal canal.

The second condition which greatly influences the fatality of every infectious disease due to the presence of poisonous microorganisms, is that the deadly effects produced depend upon the number and kind of bacilli introduced into the body at the time of receiving the infection. Experiments upon animals with many varieties of poisonous bacilli show a very close analogy to the phenomena produced by other poisons; such for instance, as opium, etc. If the dose of the poisonous bacilli is large, the animal dies; if it is small, his blood serum may destroy this limited number, and he may recover. How, then, can we diminish the number of these bacilli in our patient and thus prevent him taking into his system a deadly dose of these poisonous germs? It becomes, then, self-evident that if we wish to minimize the danger of infection, the first thing to be done is to procure and preserve a healthy condition of the mouth and nasal cavities, through which these germs enter the body. It should be remembered that this bactericidal property (or power of destroying poisonous microorganisms) is only found in the fluids of the body when healthy. For instance, it has been shown by Wurtz, Lemoyez and others that a large number of microorganisms are found at the external orifice of the nose, and are entangled and retained by the vibrissæ (or thick hairs which line the nostrils). Farther up the nostrils the number diminishes and in the upper part of the nasal cavities they are entirely absent, or the healthy nasal mucus is sterile and does not contain any microorganisms. If, however, we have any acute or chronic inflammation of the nasal cavities, whether due to catarrh or the presence of polypi, adenoid tumors, or other morbid growths, this power of destroying microorganisms possessed by the nasal mucus is lost, and the system is left in a condition which renders it an easy prey to the attacking organisms.

This fact is a weighty argument to be added to the long list that might be adduced in favor of breathing through the nose. Mouth breathing in fact is always a symptom of disease, and shows that there is in the nasal passages some obstruction to the free entrance of air into the lungs. One of the most frequent causes of mouth breathing is chronic enlargement of the tonsils. When these are enlarged it shows that they are diseased, their protective power has been destroyed, and their crypts and follicles afford resting places for the lodgment of pathogenic bacteria, and bacilli, and the distribution of their poisonous products to the system.

Chronic enlargement of the tonsils therefore requires prompt and thorough treatment, and in most cases demands their removal. Another evil effect of this condition is the imperfect development of the chest, which is produced by their interference with the process of respiration. Patients afflicted with enlarged tonsils are compelled during sleep to breathe with their mouths open. This produces unhealthy dryness of the mouth, favors the entrance of infecting microorganisms, and produces a nasal snuffling tone of voice, which is quite characteristic.

Adenoid and polypoid growths in the posterior nasal spaces, and pharynx, also produce the same effects and should always be promptly removed. The epithelial cells of the mouth, the saliva and fluids of the mouth, also possess bactericidal power, though in a much less degree than the nasal mucus. In regard to the proper method of keeping the mouth and nasal cavities in a clean and sanitary condition, it is scarcely necessary to dwell here at length.

The use of the tooth brush and cleansing the teeth with some mildly antiseptic solution three times a day should be enjoined upon our patients. If they object to this, urge them to cleanse them at least twice a day, in the morning and before going to bed. It seems scarcely necessary here to give formulas for this purpose, but a dilute solution containing glycerol of carbolic acid, listerin or camphophenique will do what is required. For a tooth powder there is nothing so good as precipitated chalk, which moreover is perfectly harmless and cannot injure the teeth as some of the more active tooth powders do.

It is the opinion of many eminent men of our profession that the regular and systematic cleansing of the teeth of children with some mild antiseptic solution or dentrifice, would not only prevent decay of the teeth but would greatly diminish the number of cases of scarlet fever, diphtheria, measles, tuberculosis, typhoid fever, and in fact all the other infective diseases which kill so many of our children every year.

Dr. Jacobi in a paper read before the New York Academy of Medicine says: "The bronchopneumonia of children is often caused by bacterium coli communis, which has been conveyed to the mouth from soiled and dirty fingers. He says further that if the respiratory organs are healthy there is no ill effect produced, but if catarrh of the respiratory passage exists, then the bronchopneumonia (which is so fatal to young children) is developed."

Dr. William Hunter says: "The condition of the mouth associated with the presence of decayed teeth and rotten fangs, is one of profound sepsis or poisoning, differing from ordinary sepsis in that all the pus organisms are continually being swallowed. It is also a sepsis connected with diseased bone. The gastric juice has fortunately a great capacity for killing poisonous microorganisms, but this capacity is not complete in the intervals between the taking of food. It should be remembered that when the stomach is empty, little or no gastric juice is secreted, and hence the bactericidal power of the stomach, which chiefly lies in the gastric juice, is for the time almost entirely lost."

Cases of gastric catarrh are liable to become septic catarrh; septic absorption from the decayed teeth and gums must be considerable, and there is also the danger of infecting the tonsils, with the consequent farther danger of tonsillitic, pharyngeal and eustachian tubes infection. The treatment Dr. Hunter recommends in these cases consists in the removal of all diseased stumps and roots, or if that be not possible, in the direct application to each diseased tooth of carbolic acid, 1 in 20, or 1 in 40, rubbed in by means of a camel's hair-brush, or a piece of cotton wool. In the *New Surgery*, 1897, edited by Dr. Roswell Park, we find on page 312, the following, of interest to the dental surgeon: "The study of the bacteria of the mouth is of great interest to the surgeon. The relationship between mouth bacteria and local lesions of the teeth and jaws and mucous membranes, of secondary gastric disturbances and the study of the mouth as a first point of infection for both local and general diseases, is a wide subject. Suffice it to say, that, normally, the mouth contains scores of varieties of bacteria—saprophytic usually, but including also common pathogenic forms, which may be found as normal inhabitants of the mouth without injury to the individual—but if the vitality of the tissues is lowered to a sufficient degree, these pathogenic germs may find a favorable breeding-ground for the production of disease. The mouth furnishes a point of infection for most pathogenic germs, *e. g.*, those of diphtheria, erysipelas, actinomycosis, the oidium albicans of thrush, tubercle bacillus, and the virus of syphilis."

To those who are interested in this subject we would refer them to the investigations of Professor Vicentini, translated and published in the *International Journal of Microscopy*, April, 1894, and running through several numbers; he gives plates showing 54 different species of bacteria he found in the human mouth; an article by Dr. Arthur D. Hugenschmidt, entitled "Experimental Study of the Different Modes of Protection of the Oral Cavity against Pathogenic Bacteria;" a paper by Dr. G. V. I. Brown, entitled, "Disinfection of the Mouth a Potent Factor in the Treatment of La

Grippe;" and a very exhaustive article by Dr. J. Leon Williams, entitled, "A Contribution to the Bacteriology of the Human Mouth."

But it is needless further to multiply quotations from authors on this subject. In recapitulation, I only wish to say that I share in the opinion expressed by others: that if we preserve and maintain by good hygiene the health of our children, and keep their mouths and nasal cavities healthy and aseptic, the lives of many thousand now sacrificed through bad hygiene, would be saved to bless and adorn our homes.

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GALL-STONES.

Treatment.—Among cases of gall-stones not to be operated upon are those where the first paroxysm of pain is succeeded by all the typical manifestations, where the patient becomes jaundiced on the second to the third day, and passes small stones by the natural way. Repeated attacks are not indications for operations when each time small stones are passed. When there are numerous attacks without the passage of small stones, then the question of operation arises on account of the suspicion that, besides the small calculi, there may also be large ones impacted in the gall-bladder. Those cases should not be operated upon in which, after repeated ineffectual attacks, larger calculi have been passed, for, if a large stone has been passed, others may follow. If ineffectual attacks continue to follow, operation is indicated. But a single ineffectual attack, without jaundice, indicates operation. A state of latency may be partially at times brought about by aperients, but it is of short duration. Operation is indicated in those cases where, after repeated ineffectual attacks, the uppermost stone enters and becomes impacted in the ductus choledochus. This impaction must be determined by waiting, two to three weeks being sufficient. Riedel (Berliner klin. Wochen., Jan. 21, 1901).

A HANDY DEVICE IN THE TREATMENT OF OPIUM NARCOSIS.

I WISH to call attention to the medical profession to a means always "at hand" in the treatment of coma incident to poisonous doses of opium or morphine, which enables the attendant physician, at least from the standpoint of the laity, to appear less brutal, and often save a patient from any marks of violence, as bruising, arising from flagellation with the often used wet towel.

All text-books condemn flagellation, which I most heartily endorse; but it often becomes necessary to use it in a modified way, particularly in the absence of the sanctioned electric battery, which every physician does not possess, or if so, in many instances, is either out of fix or out of place. I have never seen in print this method advocated nor have I heard of its being used prior to my suggestion, in 1896, while in the Richmond City Ambulance Service.

To enter into a discussion of the "rationale," I would first say that if one is observant of a hypodermatic injection of morphine or dose per orem, he notices an itching or tickling sensation about the nose and mouth; the same being manifested by the drowsy or asleep patient rubbing his face now and them. This, as we all know, is a physiologic action of the drug. Tickling or itching are both nervous manifestations, and though not the same, for all intents and purposes, when either is present to a marked degree, sleep is more or less disturbed, if not entirely abandoned.

Take, for instance, how, when pesky flies promenade during sleep the realm of infant smiles, or of more mature life, the wince, the fidget, the movement to shoo fly, a semiconscious act.

Look at the constant irritation produced by scratching, when asleep, in eczema, scabies, etc. How impossible sleep, in exaggerated pruritus ani, vulvæ vel scroti!

We all know the efficacy, much to our discomfort and annoyance, when in the bliss of our second or third morning nap to have our helpmeet or room-mate interrupt abruptly the possibility of realizing or enjoying the sensation of a millionaire (alas! only in sleep), when she or he throws the cover off and digs into our sides with both hands, in anything but mirth inspiring tickling. Have you noticed or experienced how mad or angered one gets under these circumstances?

My friends, I have practised *tickling* during the sleep of opium in poisonous doses. It acts like a charm, not only awakening, but angering nearly to the point of fighting. My advice, however, is to stop short just this side and give it in broken doses *pro re nata*. If it be a woman, so much the better, because of their delicate nervous poise making them better subjects; and I care not how degraded her morals, if she think her person threatened or any liberties taken, defence will come in the supreme effort of resistance.

Of course, I do not claim that tickling is Gabriel's trumpet, which awakes the dead, or even those in which reflexes are entirely lost. I do not refer to the abolition of pain reflex for we must ever remember that opium is the "pain killer."

Further, I claim that this method of tickling has a very wide range of application, on account of the big percentage of ticklish persons. I do not dwell on the recognized methods of treating opium poisoning, which are well known to junior students of medcine; but always *treat the patient*.

To summarize the advantages of tickling:

(1) The doctor has it handy.
(2) Wide range of application.
(3) Simplicity.
(4) Leaves no marks of violence.
(5) Efficacy.

—Dr. W. H. Lyne, in *Virg. Med. Semi-Monthly*.

"QUI VIVE."

This sentinel's challenge has passed into a proverb, and is often used in this country almost as a substantive, "on the qui vive" being synonymous with "on the alert" or "ready for action if necessary." But what is its origin? The Standard Dictionary explains it to mean "Who lives? who goes there?" as if one of these expressions was equivalent to the other; but few seem to have noticed that, if so, vive should be in the indicative instead of the subjunctive mood. Vive la republique! means "May the republic live!" (i. e., continue,) and qui vive? should mean not "Who lives?" but "Who may live?" The difficulty was queried in your contemporary, *L'Intermediarie,* and an answer by J. Lt. seems to explain it. He says that the old French challenge was Qui va la? but when many phrases—particularly military—were introduced from Italy, this was supplanted by Chi vi va? ("Who there goes?") which was transformed into French as Qui vive?—*Notes and Queries.*

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"I'm tryin to get some information about a friend of mine named Fox, who came out here," said the stranger from the East. "They tell me he died of some throat trouble."

"I guess that's about right," replied the cowboy.

"What was it? Bronchitis?"

"Bronkitis? That's a new one on me, but I reckon I see the connection. He stole a broncho."—*Philadelphia Press.*

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

RESIDUALS: PHYSIOLOGICAL AND PATHOLOGICAL.

By George H. Taylor, M.D.

It has been shown that the career of the matters engaged in vital service, and in processes included by the comprehensive designation of nutrition, proceeds in a definite and orderly course through a succession of stages extending from the initial stage which consists of ingestion of food and detention of oxygen from respired air, to the terminal or finished stage, coincident with expenditure of some form of vital energy, and dismissal of the ingredients from which these were derived, in definite, completed and stable, chemical forms.

In securing these results the nutritive ingredients have been subjected to change of place and change of composition—mechanical and chemical physics. Besides these factors, the element of time has played a perhaps unobserved, but an important, indeed a controlling part. A certain extent of time is consumed at every stage of the nutritive progress; and this has a decisive physiological value. An undue prolongation of time at any stage of these processes, involves certain deterioration—a decline from the physiological to some form and degree of the pathological state.

Considerations of relative quality of ingredients engaging in physiological processes are also involved. Expended energy is something definite. In the forms of heat or of dynamic energy or muscular power, it is susceptible of comparison by known standards; that is, of measurement. It is possible that nervous energy is likewise amenable to tests not at present known. However this may be, the supposition that the relations between nutritive ingredients on the one hand and the products into which they are resolved and which escape from the system on the other, are indefinite and hap-hazard, is opposed to all the analogies of nature and untenable. The well known definite chemical composition of different nutritive ingredients, implies the necessity for definite conditions within the physiological sphere, for such disintegration of these ingredients as shall liberate energy in the desired forms, having normal interrelations.

The reason for physiological definiteness is plain. The same elements which serve the vital system, build up and support the vital system, as co-operative numberless differing relations, exterior to the vital organism. Some of these, under unfavorable conditions, may occur, even within the vital organism, in manifest opposition to vital purposes. The vital organism controls the vital chemistry through active functioning. Defective control indicates defects of the processes of control, and is remedied by lending efficacy to the functioning processes.

A very important consideration now appears. The nutritive ingredients for supporting the various functions, including the final oxidizing and excluding function, are necessarily present throughout the series of physiological processes. But the processes which expend energy and dismiss completely oxidized products, are extremely fluctuating. One cannot foresee the amount of mental, nervous, muscular or heat making strain he may, in any given period, be subjected to. The supply which may be demanded in one period is far less than that required at another. There are natural periods of rest, and involuntary and enforced periods: there are accidental incentives to extreme expenditure and extreme conditions under which this is demanded: and it is plainly within ordinary experience that the vital system is adapted to deal wholesomely with emergencies, provided these be within normal degrees and normal extent of time.

It follows from this statement that a suitable quantity of unfunctioned nutritive material is always present awaiting functional demands. It also follows that this supply of ingredients is subject to the above stated contingency of function, no function and partial function, for this may be either normal, morbid or mixed.

The importance of an intelligible designation, at least for the present purposes, is sufficiently established by the statement that it is *within this class of the ingrèdients of the vital organism that the balance between its normal and morbid state is held,* and that the chief arena is to be found for therapeutics.

Provisionally, and until some better term is employed, we may agree to apply the word *residual* to the above indicated class of the constituents of the vital organism.

TWO VARIETIES OF FUNCTION.

The progressive nature of physiological activities implies the necessity of distinguishing the preliminary and preparative functions from the terminating or final variety. These activities should be regarded in accordance with their respective purposes. The final purpose is incontestably to liberate heat, muscular and nervous powers. This purpose is also that of dismissing the ingredients of nutrition from the organism, as completed chemical products. These have been rendered innocuous by depriving them of energy, and by their reduction to stable chemical forms, incapable of reacting on vital processes. The purpose of organic processes is to reach this double termination. The intermediate processes are subordinate and contributive to these purposes, and whatever expenditures are connected with them are interior and not final. They do not afford egress from the organism of finished chemical products or the accompanying forms of energy. Interior functioning is no substitute for final functioning nor does it absolutely provide for the admission of new nutritive material. In other words, were it possible to increase digestion, secretion, circulation or any single physiological process, nothing is gained for digestive power unless the disengagement of nutritive ingredients from the organism is coincidently provided. The final functioning which expends energy, is the sole condition for the existence of the intermediate processes.

VARIETIES OF FUNCTION.

Nutritive processes have been shown to constitute a progressive series, having the final purpose of liberating heat, and muscular and nervous power, together with certain perfected products of organic chemistry, water, carbon dioxid and urinary salines. The processes of physiology which precede the terminal, may be called intermediate or contributive. The intermediate processes (which may occur at any point in the organism) do not cause any radical change, or chemical decomposition and recomposition of nutritive ingredients. The changes which occur relate principally to form, and do not exhaust the power of the ingredients to yield terminal products, both of energy and of completed products of oxidation.

Physiological processes therefore admit of classification in accordance with their purposes. A portion of these are intermediate, in which no products are dismissed from the organism, and little or no energy is surrendered. The retention of energy renders these ingredients capable of exerting it adversely to vital interests. Another portion of these is terminal; the chemical results are physiologically complete and final. The ingredients have surrendered the energy they bore into the organism and retained till the final process. The final product is divested of energy, is innocuous in its relations to vital interests.

Intermediate functions and processes are not a substitute for the final act. Nor can these alone provide for the admission of nutritive material. For example, the process of circulation, secretion, digestion, are not, of themselves, final processes, do not disengage completed chemical products, or expend the chief forms of energy above particularized; and in the absence or delay of final processes, can make no legitimate demand on fresh ingesta. The ingredients of nutrition while awaiting functional acts are in the residual condition. The processes of final function are those which dispose of residuals in a normal manner.

THE NATURE OF RESIDUALS CONTINGENT ON USE.

The response of nutritive materials to the functional demands made upon them, is immediate and full, even though such demand be irregular and ill-timed. This fact demonstrates the practical presence of nutritive supplies at all functioning points, whether these be applied to use, or neglected. Those employed are normal, the superfluous are *morbid*, or readily acquire that character. The term *normal residual* would be unnecessary were it not that the service of residuals, in acts of function, is contingent on circumstances. The unemployed, superfluous residuals, while within the organism, are not necessarily neutral in their relations to vital processes. The quality and properties of this class of ingredients are subject to contingencies which may determine a normal career, or the contrary.

The most influential of these contingencies is time. This factor indeed plays a controlling part in determining the destiny, wholesome or morbid, of nutritive materials. For, should the demand of the final processes, which disengage heat, muscular and nervous power, fall below the average required by the organism for an extended period, it is clear that the ingredients are retained in some intermediate, chemical form, still invested with a high degree of chemical aptitude. Difficulty and delay attend all movements toward final function. The normal uses of nutritive material being checked, these are resolved into mechanical obstacles; then the inherent chemical physics of the constituent parts become developed in degrees increasingly aggressive. Residuals are now foreign bodies suffering chemical decomposition within the organism, exercising injurious effects by contact and diffusion. The deterioration of physiology is the beginning of pathology.

The consideration of time for functional acts includes precedent conditions of the vital organism. The nutritive materials in an inert and static condition must extend over a considerable period of defection of insufficient final function, to acquire the character of morbid residuals. The disproportion of quantity to final functioning demands upon residuals, is what establishes their morbid presence, and ultimately morbid character. The digestive or initial act of the series is in excess of the aggregate expending acts. Also, the fat forming function, to be noticed hereafter, which is an effort to protect the organism against the disadvantages arising from morbid residuals, is in abeyance. Residuals are reduced to stable forms by fat-formation in but comparatively few individuals of the human species, however active this conservative process may be in lower animals. In man, whenever nutritive ingredients in the residual or waiting state, and the final reduction superinduced by functional use, are one or both, prolonged beyond the period of toleration, the morbid consequences become progressively more imminent and pronounced.

RESIDUAL OXYGEN.

The above statements refer particularly to ingested supplies, or food. An interesting and instructive confirmation of their correctness is supplied by physiologists in tracing the supply which comes through respiration. Oxygen it is well known co-operates with the ingesta in supporting vital functions. For this purpose oxygen is in solution, and is retained in this state by the blood pending its functional use. Forced respiration does not appear to increase but slightly the oxygen consumed, and this little is accounted for as due to the increased muscular effort. Physiologists have further shown that, during sleep and periods of rest, oxygen accumulates in the bodily fluids, being in fact stored against the succeeding period of activity. So that the current of available oxygen in the system is subject to perturbation, and in this respect resembles the limited tolerance of residuals. Unlike residuals of nutrition, however, it is insusceptible of decomposition or deterioration, but simply bides its time for uses, mainly in connection with exit processes.

THE PHYSIOLOGICAL CHECKS UPON MORBID RESIDUALS.

It may be inferred from the facility with which residuals may acquire an obstructive and morbid character that the individual may be in constant peril on that account. All disquietude will be obviated by a suitable knowledge of the provisions against the morbid degree of residuals. Two principal provisions inhere in the animal constitution in opposition to disagreeable consequences that might otherwise arise. The first is reserved for future description and explanation, and is here mentioned as the duplicate function of the digestive organs, these naturally possessing the power of excluding useless, as well as including useful, nutritive ingredients. The second provision is the constant depletion of residuals by normal use, even transforming those of incipient or decided morbid character to legitimate purposes. This conservative purpose is secured by the organic necessity for heat expenditure. The losses of heat, and the accompanying final oxidation and dismissal of ingredients serving nutritive purposes, are independent of the will, require no forethought or calculation, proceed automatically, and are subject to only slight variations of urgency of the incentive. The process is in effective action under all circumstances, making inevitable inroads upon superfluous ingredients, even those which are assuming morbid qualities. Heat-production simply returns the deteriorating contingent of the vital organism to normal uses. Its operation constantly tends to recover the disturbed equipoise between the final or exit class of functions on the one hand, and the receiving and intermediate functions on the other. The quiet expenditure of heat with the positive reduction chemistry associates therewith are even asserting their conservative powers and capability for ultimate control of the disposal of morbid residuals. The advantages derivable from this function, in all questionable cases, should be promoted, and not balked by ignorance or officious meddlesomeness.

FURTHER INFERENCES.

It becomes evident that questions of health, whether relating to hygiene, to pathology or physiological deterioration, or remedies, or physiological restitution, cluster closely about the transitional and therefore controllable state of the components of the vital organism above described. At no point in the activity embodied in the vital organism, can more rational interest be centered than at the turning point, where the destiny of ingredients from which energy is derivable, may be either in the available and progressive, or the unavailable and retrogressive, direction. The residuals of the vital organism are comparable to the supply train of an army of invasion exposed to surprises, to defeat and capture by an alert enemy. Safety and success depend on a good previous knowledge of the country invaded, and an activity and intelligent vigilance, else the watchful enemy will be able to pervert the valued stores to his own uses to the discomfort and even to the defeat of his opponent.

The foregoing representations of physiology may not appear to the careless reader to touch questions very closely related to digestion. Further consideration will however show that the central topic is approached from an opposite direction from that commonly presented: that the digestion of food involves not merely the digestive secretions, suitable kinds and preparations, "What to Eat and What to Avoid," but also and in far higher degree, the conditions of the organism. The digestive powers are indissolubly connected with expenditures; for expending acts determine the need for food and the propriety and rate for its introduction which no consideration of details of the process alone can possibly do. The digestive organs have no proper control of needless supplies. The admission of superfluous nutritive ingredients to the organism induces little or no incentive to expenditure and the reduction of such ingredients to exit forms is not thereby proportionally increased. The receptive and the intermediate processes of physiology naturally wait on the excluding processes. Were no energy manifested by the organism, no stable physiological products could appear, and no intermediate and no digestive functions could exist. The latter becomes imperfect and faulty in proportion to defects of the former. To remedy defects of digestion one must begin by promoting the functions which resolve nutritive ingredients to stable and exit forms.

It follows from the above considerations that the symptoms and distresses of faulty digestion do not necessarily imply diseases or even defects of the digestive organs. Such symptoms may, under some circumstances, even show that the symptoms arise from too much digestion—or rather that the digestive organs fail to exclude from the system the superfluous nutritive ingredients presented to them, through which cause the organism has become pervaded with inert and therefore morbid residuals which extend their influence and presence to the digestive cavity and secretions. Indigestion is conclusive evidence of disparity between the receiving and the excluding processes, whose consequences have insidiously accumulated through a lengthened period. Such disparity is readily rectifiable, when understood, because an understanding of the nature of the fault leads directly to an adjustment of the necessary equality between the income and the outgo of the vital organism. It is obvious that remedies addressed solely to the digestive organs and mechanism have little or no relevancy, because they have no adaptation to restore the equipoise demanded for health.

The above statements of principles and inferences are abundantly supported, if not by text-books and current medical literature, at least by ordinary medical practice. Such practice, however, needs to be construed by the light of concurrent physiological activities, and not by the superficial assertions about remedies to which the digestive sufferer is too willing to give ear. Luckily for the renown of therapeutics, nature will not be foiled, in her fine work of reducing residuals, while life lasts, whether therapeutic interposition be beneficial or otherwise.

The physician may indulge his patient with explanations perhaps more learned, but not therefore more in accordance with physiological principles or more susceptible of verification in practice.

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GLOOM AND GLEAM.

There's gloom enough to keep you glum,
And sorrows will ever crowding come;
If signals for storms you always fly
There'll be matter enough to make you cry.

There's gleam enough to keep you glad,
Though the skies are heavy and times are bad,
And blessings will follow on apace
The one who gives with a smiling face.

So banish the gloom that keeps you glum
To the farthest corner of Christendom,
And cherish the gleam that keeps you glad
As the best little comrade you ever had.
—Rose Mills Powers in *Good Housekeeping.*

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COSMOPOLITAN HEALTH STUDIES.

By F. L. Oswald, M.D.

SCANDINAVIA.

Cold, pure air is Nature's panacea for the cure of germ diseases, and the first October frost abates climatic fevers all over the lowlands of the Northern Hemisphere. In midsummer a north-wind day gives a new lease of life to thousands of children sweltering in the crowded tenements of large cities. Consumptives, who would cough their lungs away in the debilitating atmosphere of the tropics, recover in tent camps of the upper Adirondacks. Frost is a peptic stimulant, and even a moral tonic, and it is a suggestive fact that nine out of ten international wars end with the victory of a northern nation over its southern neighbors.

Egypt conquered by Persia, Persia by Greece, Greece by Rome; armies of trained Roman legionaries vanquished by the iron-fisted warriors of the north; South German Austria overpowered by North German Prussia, South Spanish Moors by North Spanish Goths, dozens of South Italian principalities by North Italian Savoy; history repeating itself from Northern Europe to South America, where warm-land Peru had to yield to Chile, and Brazil more than once to the Argentine Republic.

"The difficulty of subduing the American aborigines," says Bernal Diaz in his chronicle of the Spanish conquests, "increases with the distance from the equator, till we reach the regions where perpetual winter stunts trees to shrubs and men to dwarfs."

In accordance with that rule we should expect to find the maximum of physical vigor near the pole-ward limits of agriculture, and Prince Wallenstein, though himself a champion of the South, had no hesitation to admit that only lack of numbers prevented the Scandinavians from achieving the conquest of the world.

The great mountain peninsula of Northern Europe seems, indeed, to have been the original home of the Goths, who fought their way from the Baltic to the Euxine and saved Europe from the risk of a Mongol deluge. On the battlefield of Chalons they beat back the storm of Attila's cavalry charges for a hundred hours, and on the last decisive day turned the tide of battle and routed the old cut-throat king in a manner that precluded his return and completely re-established the prestige of the Caucasian race.

The same shaggy warriors effected the conquest of Spain and vanquished the Emperor Valens on the plains of Adrianople, where one of their athletes created a panic by spearing a Roman centurion and swinging him aloft like a skewered rabbit. They conquered Dalmatia, the Danube Valley, Macedonia, Northern Italy, and, finally, took Rome by storm and sacked the city that had fattened on the spoils of three continents.

Scandinavians, in the more complete disguise of Spanish Goths, also broke the power of the Semitic Moors, whose kinsmen had planted the flag of the Prophet on the ramparts of every large city from Cadiz to Benares.

Scandinavians, masquerading as Knights of Normandy, conquered England, captured Sicily and Naples and vanquished the Turks as they had never been vanquished before, Tancred and Bohemond being two of the few Crusaders who continued to maintain their conquests after the retreat of their allies.

Under Gustavus Adolphus, thirty thousand Scandinavians held their own against the levies of the Austrian Empire; in the trenches of Narwa twelve thousand Swedes would have annihilated seventy thousand Russians if the commander of the Muscovites had not ordered a timely retreat. In the refinements of strategy the Scandinavians were surpassed by several southern nations, but the old Norsemen were the only warriors who carried the love of battle to the length of considering it a disgrace for a soldier to die in his bed, or who, like King

Hakon, insisted on sharing the doom of their vanquished companions:

> "Call him not alone, who dieth
> Side by side with gallant men."

A passion for outland conquests is proverbially apt to drain a country of its bravest and most enterprising inhabitants, still the present natives of Scandinavia can stand the tests of physical supremacy in more than one respect.

Their fishermen are out and out the hardiest latter-day creatures of our species. Southwestern Norway contests with Kentucky the honor of producing a superior breed of bipeds from a foot-rule and inch point of view. In the province of Gothland, Sweden, too, there are villages where four out of five adults are six-footers, though the fifth may happen to be a thick-set athlete and the best wrestler of the neighborhood. And in the average of longevity Scandinavia, as a whole, is not surpassed by any other country, its nearest rivals being Scotland, Turkey, Greece and Southern Russia, in the order named.

Admiral Tordenskiold, who was mortally wounded in a duel (1721), was nursed by a number of friends, who expressed their indignation that a man in the prime of his strength should have been induced to stake his life against that of a worn-out old profligate. "Yes, it's a little unfair," said the dying man; "there have been eight centenarians in our family within the last hundred years." The admiral was a native of Drontheim, where the thrift of the hard-working peasants has attached a stigma to early marriages, thirty years for the groom and twenty-five for the bride having long been considered a fair average.

A similar unwritten law was once enforced in Dalecarlien, and, strange to say, still holds its own on the Island of Corsica, where the dread of over-population has led the highlanders to ostracize neighbors marrying in their teens.

Jan Herfjall, who died in 1842 in a suburb of Falun, came near doubling the stint of the Psalmist, and never left the vicinity of the town, where, according to the parish register, he was born in 1703. But a still more remarkable case is mentioned by Dr. Hufeland (p. 83 of his "Macrobiotic"): Joseph Surrinsen, a native of a little fisherman's village near Bergen, Norway, who died September, 1797, in his 159th year. He was already more than a centenarian when he was temporarily crippled by a rock-slide in a quarry, but in the course of the next ten years fairly regained the use of his injured foot, and was "never internally sick" in his life. Colds could not fasten upon him, but they puzzled him greatly. He used to advance all sorts of grotesque theories about their origin, ascribed them to a contagious form of sheep-rot, and what not. Temperate from necessity, if not from choice, he admitted, with a sigh, that he had not been really drunk oftener than twice in his life. There were years when he was too poor to procure liquor in any form. For tea and coffee he had no predilection whatever, and generally washed down his barley cakes with rain-water or a cup of buttermilk. On the day before his death he assembled his numerous relatives and permitted, or rather compelled, them to shake dice for his earthly possessions. "My time's up," he laughed, "and in a day or two you would be fighting and quarreling, so we might as well part in peace and have a little fun for a farewell." His cabin resembled a lottery office, all afternoon, the stentorian voice of the patriarch maintaining order. Pieces of furniture, wearing apparel and a miscellaneous kitchen outfit were raffled separately and stacked away to the credit of the winner, while the old man kept a keen watch for tricksters and accompanied each round with humorous comments.

Numbness had already crept over the lower part of his body when he made his grandchildren step up, one by one, and dismissed them with a kiss.

Inspector Wessel, of Stavanger, states that in the province of Christiansand it is nothing unusual to see octogenarians at work on their farms. He seems inclined to attribute the vital vigor of the natives to the moist sea winds; still the frost-mitigating influence of the ocean is apt to be overrated, and blizzards are not near as rare as spells of oppressively warm weather. The weather outrages of our northern border States (40 deg. F. below zero at Sault Ste. Marie, Mich.) are, indeed, unknown; but what the winter lacks in rigor it makes up in persistence, as may be inferred from the fact that snow covers the ground from the middle of November to the end of March.

The average yearly temperature at Christiania is 42 degs. F., at Trondhjem 40 degs., at Hammerfest 35 degs., and even thus the Gulf stream is working miracles, for Hammerfest is nearly two thousand miles further north than Montreal, and Christiania more than one thousand.

Agriculture requires energy, under such circumstances, and, besides plowing, draining and hoeing, the Norwegian farmer has to burn wood, to fertilize his dreary moorlands with ashes. Barley is the staple cereal; the successful cultivation of rye is limited to a narrow strip of coastlands, but the ubiquitous potato has been acclimatized in highland valleys as far north as the sixty-eighth degree of northern latitude, and extra hardy varieties are steadily pushing their way further north, though the first experiments were made in Southern Sweden abou 1705—not a bad record for a native of Peru. Wheat ripens scanty crops in Gothland, here and there, but had thus far discouraged al attempts to extend its area of cultivation. The great mass of the rural population stick to barley cakes, potatoes and milk.

If they keep sheep, it is generally for the sake of the wool rather than the mutton and the hale appearance of the Fjell dwellers would confirm the theories of the Alcott school, if it were not for the enormous quantities of fish consumed in all parts of the lake-studded peninsula.

Fish, served in a sauce of garlic and butter, forms a frequent Sunday dinner, followed by a dessert of cakes and berries, or berry jelly in winter. Nature has been pretty lavish in the supply of such tidbits. There are districts where, in June, the mountain slopes turn red with ripening strawberries, and whortleberries are even more abundant and are raked in with wooden combs by children, who pass a considerable part of their summer vacations in the mountains. Excellent salmon that would sell fresh in New York at thirty cents a pound is found by horseloads in the cottages of Norwegian peasants, so poor that they have to let their children go barefoot almost all the year round.

"Beef and liberty," the motto of a British bachelor's club, here takes the form of "fish and freedom"—freedom from dyspepsia, too, for ichthyophages, if they will use their garlic in moderation, can certainly claim the advantage of a comparatively digestible diet.

"What do I owe?" asked a traveler who had enjoyed the hospitality of a Norway highland ranch for half a week.

"Owe! How do you mean?" inquired the materfamilias.

"For my board—want to settle my account," said the stranger, holding out a handful of coin.

"No, indeed, sir," said the good wife pushing back his hand; "as long as that field gives us potatoes and that lake fish no one shall say that Farmer Andersen took money from a visitor."

Coffee, the curse of our Southern hill country, is rarely seen in the Fjells, and the alcohol epidemic was checked before it had crossed the border of Sweden, where at one time the number of private (and permitted) distillers reached the horrid aggregate of 14,500.

The hereditary prowess of the Goths was beginning to yield to *brandewin,* but about the middle of the nineteenth century a reform movement, inspired by an enthusiasm that has been compared to that of the Protestant Revolt, spread from the Cattegat to the Gulf of Bothnia and stampeded the liquor venders in a way that would have surprised the Kansas prohibitionists. The resolutions of vociferous mass meetings echoed from town to town and never ceased booming till the number of licensed distilleries had been reduced to four hundred in the course of the first decade and below one hundred in the next.

The "Gottenburg system" is not an unmixed blessing and has been denounced as a shameful compromise with the powers of darkness, but, as even the opponents of our South Carolina experiment were obliged to admit, has effected enormous improvements upon the former state of affairs. The sick rate has decreased, industries are flourishing where the villages swarmed with mendicants, and all over Sweden the drunkenness of the working classes has abated, much to the joy of their staid Norwegian neighbors, who were scandalized at the frequency of border fights, and dreaded the system of conscription that forced their sons to associate with the reckless recruits of the Southlanders.

The difference may have been partly due to the scanty city population of Norway, but partly also to the abundance of healthy pastimes. There are no restrictive game laws on the west side of the Fjells, and the fauna of the Norwegian wilderness includes bears, wolves, deer, reindeer, wildcats lynxes, foxes, squirrels and rabbits, besides seal and an infinite variety of waterfowl. Grouse abound in the highlands; the harfanger owl is stout enough to fly away with a full-grown hare, and eagles are so numerous that an association of stock breeders recently decided to check their ravages by doubling the government bounty.

The premium on wolf scalps, too, has been increased, and betwen hunting and fishing, there is never any lack of health-giving pastimes. A good deal of time has to be spent in fuel gathering, but that sort of work, too, is frequently turned into sport. The lumbermen put their bundles of sticks upon runners and use them for sledge races down the snow-covered slopes of the mountains.

When the snow gets deep, hunting parties start out on snow shoes, and it is nothing rare to see a good marksman return from a day's hunt with a forty-pound bundle of mixed peltry and his beard, shawl and unkempt hair all clogged with icicles.

His knee joints may be stiff from the strain of the skye-shoes, but an hour's chat in the warm chimney corner turns all trouble into comfort, and, after a supper making amends for two missed meals, the hunter hangs up his clothes near the fireplace and goes to bed stark naked—perhaps the only custom he has in common with the Carbonari of the Apennines.

A Norway mountain boy of sixteen years has already mastered the rudiments of woodcraft, and the youngsters are indefatigable trappers, whiling away the long winter evenings with the preparation of snares for coneys and partridges.

About an hour after supper the family adjourn to their floor-beds and devote the gathering darkness to a symposium of ghost stories.

On leisure days of the warm season old and young go a-fishing, combining pleasure with a good deal of usefulness, if their bait holds out, for the perch and salmon waters are practically inexhaustible.

Then comes the berry month and the season for egg gathering and surf bathing with incidental hunts for sea spoil.

That perennial program of fun leaves no time for vices, and travelers agree with the verdict of Count Bandissin, that the good nature and exuberant vitality of the Throndjem highlander can reconcile a misanthrope with the human race.

Their piety is of the simplest sort; their moral exemplars join in their Sunday afternoon sports; they are, in fact, children of Nature in a sense almost forgotten in our centres of Sabbatarian bigotry. Next to outdoor exercise mirth is the best of all tonics, and their combination may have a good deal to do with the longevity of the fun-loving highlanders.

On some of the South Sea islands the fanatical suppression of harmless pastimes has decreased the average of longevity one-fourth, nay, led to the extinction of whole tribes, thus proving a more dreadful curse than the now discontinued practice of infanticide.

Many Edens of the tropics have, in that manner, been depopulated by their would-be reformers, while the primitive Northmen have rediscovered, or perhaps never forgotten, the secret of the optimistic Greeks, that one of the surest ways to postpone death is to make life worth living.

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CURE FOR THE NOSTRUM EVIL

Germany has solved the nostrum problem easily. In Germany, every "patent medicine" must have the approval of an examining board before it can be offered for sale. It can neither be advertised nor sold until the board has incontrovertible evidence that it is beneficial for the purposes claimed. Even after it has been passed by the board, the formula must be printed on every bottle or package offered for sale. They have solved the problem. No American citizen would pay a dollar for a solution of Epsom salts, colored with caramel, and guaranteed to heal all the ills to which the human flesh is heir, if he knew what he was doing; he would buy the salts for a nickel, but he would likely consult a doctor before buying it. No people in the world have more confidence in their doctors than the people of the United States have in us.

Our political machines are more easily influenced than those of Germany. Our people would stand by us if we would make a man-like effort to fight the dragon, and also educate our clientele. No opportunity could be more propitious. The 100,000 doctors in the United States can get any legislation they wish. He must be a very poor and unsuccessful doctor who could not influence 20 votes; and two million votes would do anything. Five hundred votes per doctor could be counted on if every physician worked. But before the voting comes the "wire pulling." We have the strength here, too, if we but use it. Note how the *doctors* defeated a candidate for the United States Senate in one of our western states; only because he had abused them.

We may well afford to follow the plan evolved in Germany. The doctors of the United States can do it without perspiration, if they will. Let every physician write to his assemblyman and State Senator; let him get ten of his friends to do the same; let him repeat the dose at least three times in each session, and each state will soon have such a law. Such a united effort will defeat the lobbying of the nostrum vendor. —*Med. World.*

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

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Requests for change of address should plainly state both the old and the new address.

NEW YORK, JUNE, 1903

THE NEXT DIETETIC FAD

Will probably be a very sweet one. Following the example of the native Porto Ricans an Army veterinarian has been experimenting with cheap molasses as a food for horses. At first the horses turned up their equine noses at the substitution of cut grass, molasses and water for orthodox oats and succulent herd's-grass. But after a few days they took to the new diet as if they had always lived on it and cared for nothing else.

Their standard ration consisting of 14 pounds of hay and 12 pounds of oats per diem was changed to 35 pounds of cut grass and 14 pounds of molasses, diluted with one-fourth its volume of water.

During the first ten days, before the animals had become reconciled to their new regimen they lost about 27 pounds each in weight. But as soon as they acquired a liking for the new ration they began to thrive, and at the end of 40 days each had gained about 50 pounds over its original weight.

It was found necessary to add a little bran to the ration about every two weeks to overcome a tendency to constipation.

Other similar experiments were tried with parallel results, and this officer's conclusions are thus stated:

1. Thirty-five pounds of grass and from thirteen to fifteen pounds of molasses as a daily allowance is sufficient to maintain a horse of one thousand pounds weight in good condition in a climate similar to that of Porto Rico.

2. Sudden change from dry food to this ration is not at all injurious and does not derange the digestive apparatus.

3. That horses on this ration appear to be able to do more work and present a much better appearance.

4. That the cost of feeding is reduced from about twenty-seven cents per day to fifteen cents per day.

This is a decided innovation and upsets a good many dietetic traditions; but the scientific world is getting used to these "upsets," and it will be strange if some food crank does not "catch on" to the molasses and bran-mash idea for humans. There's nothing to hinder a free harping on the claim that such a diet will fatten the thin and thin the over fat, that it will make plenty of "healthy red blood," nourish the nerves and make the users eligible for membership in the Hundred Year Club.

* *

AN OVERLOOKED CAUSE OF PULMONARY DISEASE.

THE medical press and even the secular journals are loaded with brilliant and exhaustive essays on the causes, prevention and rational treatment of the various forms of tuberculosis. One very dignified and profoundly scientific quarterly is strictly devoted to a study of this important subject. The etiologic factors or causes and prevention are the prominent topics of discussion, and yet none of the writers seems to give more than a passing thought to one of the foundational and most prolific causes of this dreaded scourge. This cause is in a word, *Non ventilation of lung tissue.*

Babies cry. It is their primal source of self defence, their one birthright and physical salvation. Crying aerates the lungs and circulates the oxidized blood. Soothing syrups kill because they prevent Nature's vital resource—crying. Every child should be systematically indulged and even encouraged in crying, not in the convulsive shrieks of actual pain, spasm of colic or tantrum of temper, but in that wholesome and hygienic, but at the same time vigorous effort which thoroughly and repeatedly expands its little lungs to their utmost. The quiet, passive, non-crying child invariably has "weak" because only half-developed lungs. All the effeminate and "goody-goody" children live colorless and washed-out lives, usually dying young, of some form of wasting disease, because they do not breathe sufficiently. Personal ventilation is far more essential although much less talked of than ventilation of the room or dwelling. Nature will tolerate and successfully antagonize a pretty bad specimen of air if there is only plenty of it utilized.

Unused air-cells collapse; then they slowly degenerate; in a short time they furnish a favorable culture field for the enterprising bacillus tuberculosis, which loses no time in "catching on."

Everybody inhales the germs every week and at times every day of their lives. Healthy lung tissue in active and regular use rejects and ejects them. But unused cells furnish them the very enjoyment they are seeking, and when they find nooks, nests and corners to which little or no oxygen finds access they lose no time in starting a colony. The athlete and those who are accustomed to robust exercise out of doors develop sound and roomy breathing apparatus. Confine such persons to the house and make them sedentary in their habits; result, unused lung tissue, and almost invariably a retrograde movement which ends in tuberculosis and death.

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FAT IS A FACTOR IN POLITICS.

The *British Medical Journal* says: Cæsar wished to have about him men that were fat and slept o' nights: and looked upon those who, like Cassius, had a lean and hungry look as dangerous. The typical Yankee is still like Coleridge's Ancient Mariner,

> Long, and lank, and brown,
> As is the ribbed sea sand.

This makes him dangerous to tyrants, and has doubtless had a good deal to do with his success in establishing the greatest democracy of which there is record in history. It may therefore be a fact of considerable political import that at least in New York the national type seems to be changing. Some observers of a statistical turn of mind have lately been taking stock of the man in the street as he is seen in New York. Among 1,000 New Yorkers, from the age of 20 upwards, over 28 per cent. showed an abnormal development in abdominal region. In a poor quarter the percentage of fat men was about 14, but in Broadway, where the well-to-do most do congregate, it was 37. In the corridors of the high-class residential hotel the number of obese individuals in a total of 100 was 70, while at a humbler caravansery the percentage sank to 11, the lowest point anywhere noted. Although among 1,500 adults taken at random, 447 were corpulent to the degree of deformity, giving an average of 29.8 per cent. Among the effete monarchies of the Old World there is a stream of tendency to fat which may account for the slowness and sleepiness with which we are constantly reproached by our go-ahead cousins on the other side of the Atlantic. Perhaps it is on the principle "who drives fat oxen should himself be fat" that so many European rulers are men of weight as well as authority. From some interesting statistics on this subject that have recently been published, the greatest sovereign in Europe, though he is short of stature, turns the scale at 184 pounds. It would be indelicate, if not indiscreet, to give particulars of the weight of some other exalted personages. It may, however, be noted as an interesting fact that the Reise-Kaiser, whose meteoric appearances in different parts of the globe in rapid succession, with his winged words and impulsive telegrams on all manner of subjects, used to keep the world in a state of what Lord Salisbury (or an ingenious reporter) called "animated expectancy," has for some time past become almost a "heavy father" in the comedy of politics. It is a tempting subject of speculation how this comparatively reposeful attitude may be dependent on increasing bulk. If Louis XVI. had been less protuberant in the paunch he might have kept his head on his shoulders. The leaders of the revolution were, as may be seen from portraits, mostly of the Cassius type; it is impossible to conceive a Robespierre or a Murat as fat. Napoleon in his later years became fat, and according to Lord Wolseley, this contributed in no small degree to his defeat at Waterloo. Our own sovereigns have for a century and a half been what the love-sick maidens in *Patience* style fleshly men, of full habit, and Beau Brummell called, less æsthetically, "fat;" and it is not unreasonable to believe that this fact has had some influence in preserving our glorious constitution in vigorous vitality amid the crash of falling thrones and crumbling empires. Bismarck at the height of his power had, like Cardinal Wolsey, an "unbounded stomach," which could scarce be kept within reasonable compass by the severe maceration of the flesh enjoined by Professor Schweninger. Had he been fat in his youth, it is more than doubtful whether he would have welded Germany together with blood and iron. Who can tell how far the massiveness of the Prime Minister's bodily frame may have helped to keep the peace of Europe by weighting the Pushfulness of leaner politicians? The *role* of fat in political physiology cannot be summed up in a simple formula; but for practical purposes it will be found tolerably safe to assume that thinness makes for revolution and fleshiness for repose, which, expressed in terms of politics, means Conservatism. The ideal demagogue is lean—*toermente par son caractere,* as Madame de Stael said Napoleon ought to have been. A man who has a full round belly, with good capon lined, is by the law of his physical being a Conservative, whose principle is *Quieta non movere,* though he may delude himself and others with the fancy that he is a radical. Those of our American friends who think that the well-being of the United States depends on the maintenance of a Republican form of government will do well to take steps at once to repress the tendency to abdominal expansion among their citizens, or they may live to see the President transformed into an Emperor.

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THE SEATING OF SCHOOL CHILDREN ACCORDING TO VISION.

The *Medical Age* thus briefly but aptly calls attention to this very much overlooked cause of defection in the eyesight of school children as well as of unsuspected but serious ill-health:

One of the most important subjects in regard to school hygiene is that of the proper seating of school children according to their ability to see. This unfortunately has not received the attention in this country that it deserves, and in consequence we are constantly called upon to attend children suffering from nervous and other troubles, the origin of which is undoubtedly eye-strain. A systematic examination of the eyes of school children at certain intervals would be of great benefit to those suffering from defective vision. This, combined with care by teachers in allowing near-sighted pupils seats near the blackboards and windows, would be the means of keeping in school many children who otherwise have to drop out on account of poor health.

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AN ORIGINAL TURKISH BATH.

"About the first real craving that strikes the unsophisticated American or Englishman upon his arrival in Damascus is the desire for a Turkish bath right on the spot where the famous bath was originated," said a traveler. "His next decision is that a New York or a London Turkish bath is about as far ahead of the Damascus article as mother's pies beat the baker's. In view of the Eastern origin of these baths I naturally expected to find something of luxury.

"Entering one of the finest baths in the city, I was at first sight much pleased with the general appearance of things. Dog of a Christian that I was, I entered a large open court, in the centre of which gushed a splendid fountain, while the scene all about was at first impression one of an Oriental fairyland. All around the fountain on raised platforms were combination chair couches upon which Orientals were lolling as only Orientals can. Some were reclining, some napping, some sipping coffee, some smoking the narghileh, some chatting, and one was going through the red tape contortions required by Allah when the ninety-nine Moslem prayers are offered.

"As if to carry out the fairyland idea, instead of being conducted to a private room, in conformity with the views of propriety of the Western dog of an unbeliever, I was expected to disrobe before this miscellaneous audience. Also, before the audience in the street whenever the door was opened. My clothes I had to store in a drawer under my couch. The publicity of the disrobing act was modified somewhat, however, by the attendants, who, by the use of towels formed a temporary screen. After this they gave me wooden sandals with high strips fastened to the soles, which converted them into a sort of high stilt. I saw no use for this contrivance excepting to further the chances of breaking my neck. With these stilts on I was taken to the 'hot room,' where there was a temperature not higher than that of New York City on a hot summer's night. After remaining here some time there was some slight rubbing and a deal of leg pulling and arm jerking.

"Desiring a shower bath, a believer in the True Faith, aimed a garden hose at me and doused me with such a sharp stream that I had all the 'shower' I wanted in three seconds. Then they wrapped me in a Turkish towel and turbaned my head for me, and led me to a couch and bade me rest. I rested, wishing for an hour in my favorite Turkish bath in New York City, far from the land of Allah, within earshot of the clanking trolley car and in a district over which reigns only Sheik Tim Sullivan.

"As a mere idea of satisfying curiosity nothing can top the visit to the Damascus baths. But, unlike the Turkish fig, the Turkish bath is not at its best when sampled on the spot."

* *

THE FREQUENCY OF CONSUMPTION IN MAN.

The second annual American Congress of Tuberculosis which recently held its sessions in New York, should possess special interest to people who live in New England. The best method of treating the disease, of caring for the sufferers, and protecting our communities against the spread of the infection, is a very live question, and one that should enlist the deepest interest of those best informed. About every State in the Union, save Wyoming, was represented by delegates, but the Governor of that State wrote that consumption was almost wholly unknown there. We doubt if this is perfectly true, but in any case, no representative of any Eastern State could make any such comfortable claim. Familiar as most of the delegates were with the ravages of the disease, they were rather surprised when Dr. Pryor told them that fourteen thousand persons died yearly of consumption in the State of New York. Dr. Pryor might have gone farther and said that about one-sixth of the deaths of the world are due to this one disease, the mortality from it exceeding the combined deaths from war, famine, plague, cholera, yellow fever, and small-pox. According to official returns 170,000 persons die of consumption in Germany each year. In France 150,000. In the United States 160,000. In Paris 11,000. In London 13,000. In New York City 9,000, and the same proportion holds good for most large cities. It is estimated that between the ages of fifteen and forty-five—the most useful stages of human existence—phthisis kills one-third of the people who die at these ages, and nearly half between fifteen and thirty-five. In view of these figures well indeed may a Congress be called that should earnestly consider the best way of attaining the ends mentioned above.—*Mass. Med. Journal.*

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GANLEY'S VEGETARIAN CAT.

"You know that cat I've got that can swim like a duck and fight like a tiger, don't yer?" said "Dick" Ganley, the veteran policeman on duty at the Barge Office, yesterday.

The answer being in the affirmative, he proceeded to narrate this yarn concerning a new cat he had just secured title to.

"Of course," he said, "you all know what an outlandish beast my cat Dick is. Now, don't say anything to anybody, but the fact is I've got a new 'un that can give 'em all the cards in the pack an' still beat 'em out. I've named him Richard III. I'm the first Richard, the swimmin' cat's the next, and this new 'un I've got's the last 'un. I was talkin' to a feller from Cuber a few days ago, and in the course er the confab I told him about me swimmin' cat. He listened all right, but didn't seem to get on to what I was sayin'. I was gettin' a little uppish at him and was fixin' to leave when he up and made the followin' claim:

" 'Your cat,' he said, 'may be all you say, but if its a mean, fightin', reglar champion-of-the-world anermal thet you'er lookin' for, I kin trot out a anermal from Cuber that kin whip any cat that was ever born.'

" 'Now, don't git gay,' I snarled. 'If you've got a cat thet kin whip mine, I won't do a thing but git off the force and spend ther rest of me life takin' in ther sights o' Brooklyn.'

" 'Acshuns, not words,' said me soger fren', and, motionin' me ter follow, we started for ther ship. Up ther gangplank an' onter ther ship we went. Down in ther hold he led me, an' in a corner showed me a anermal, all bundled up, whinin', lookin' fierce, with his hair stickin' out all over his back like a percupine. He pinted and I looked. Es I looked I seen a cat the likes of which no man on this earth, onless he seen thet perticklar one, ever seen. White and black, with spots of gray here an' there, with eyes a color thet made him seem to all appearances a albiner, the cat made er sight fit to scare all ther cats in New York ter deth.

" 'So thet's yer cat,' says I, soon's I cud recover from me surprise. Me cat on ther Battery is a good 'un, but bein' an hones' man, I admit that that ther anermal is a top-notcher. He has ther shape of er tiger. ther eye of a lion, an' ther spots of ther leepard.

"Me complimints seemed ter make me fren' sorter 'shamed of his actions whin I tole him concernin' Richard II., for he took a chaw of navy plug and thin said, 'Yer have been a fren' ter me sens fust I made this port, an' ter show yer me appreshiashun, ther cat's yours, pervidin' yer wants him.'

" 'Wants him, did yer say?' says I. 'That's not a srong enough word With me other 'un, that cat'll make a pair ther like er which no one man ever owned before. Then I tuk him home.

"This las' cat don't eat meat. He's a vegetarian, an' eats only cabbage leves, water cress, turnips, an' er carrot now an' thin. Bein' so mean, I don't understan' his objection ter meat, for anermals thet fight generally want red blood, and plinty of it.

"With me other cat, he'll be on exhibition at ther nex' cat show, an' its two prizes I'm expectin'. One'll be for the ugliest cat, that's Richard II., an' one fur ther meanest 'un, thet's Richard III. Ef I don't git 'um well, it'll be up ter me ter tell ther Committee of Fifteen."

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CURING A BOIL.

A WRITER in the *Peoria Medical Journal* describes his method of treating boils. To render the procedure painless, a few drops of cocaine are introduced into the tissue and cavity of the boil, using a very fine needle, which is at first allowed to rest with its point upon the inflamed surface, with merely the weight of the syringe to gradually force it beneath the skin. If there is a drop of cocaine on the point of the needle it will soon prepare the way for the further and more forcible introduction without pain, and then the cavity is made the reception of enough to completely anesthetize its surrounding tissue. When that is accomplished, a little larger needle is readily introduced and several drops of ninety-five per cent. carbolic acid pressed tightly into the cavity. Absolute sterilization is invariably secured, and with absolutely no suffering to the patient whatever. A felon may be treated in the same manner.

A CHALLENGE AND ITS ACCEPTANCE.

THE late Dr. Tanner was not a literary man, but was capable of flights when he took up his pen. Once, when he had asked in the House whether it was true that the Duke of Cambridge had resigned his position as Commander in Chief, a Major Jones of Penzance was so outraged that he challenged Dr. Tanner to a duel, and the following telegraphic correspondence took place:

"In reply to your despicable question about the Duke of Cambridge, I designate you a coward. Delighted to give you satisfaction across the water. Pistols."

To which Dr. Tanner at once replied:

"Wire received. Will meet you to-morrow in Constantinople, under the Tower of Galata, midnight. Being challenged, prefer torpedoes. Bring another ass.—Tanner."
—*The Academy.*

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JAW-BREAKERS, OR EASY WORDS.

A French journal cites the following example to show the simplicity of language used by German chemists:

"If benzoynaphtylamide is treated with nitric acid, it forms two isometricmonitroamidobenzonaphtylamides, of which one gives mononamidobenzonaphtylimide and the other adhydrobensodiamidonoleana."

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

THE NECESSITY OF A MORE PERFECT AERATION.*

By H. H. Spiers, *M.D.*,
Ravenna, O.

We are told in Genesis the Lord formed man of the dust of the ground, breathed into his nostrils the breath of life, and he became a living soul. Whatever the belief as to the genetic account of creation, this much is certain: In the race of life man excels. The swallow of to-day is the swallow of the first century. The lion and tiger eat the same food and procure it in the same way. Not so with man. He alone of all animate creation has shown wisdom and skill in environment.

We rightly feel proud of this, yet there is reason for humility.

To him who reflects and compares man's estate with the domestic mammal, it is evident:

1st. The number of still-born to man is vastly in excess to that of the mammalia.

2d. The number of deformed or abnormal births to man is vastly in excess to those of the mammalia.

3d. Of normal births to man, the number who die natural deaths before maturity is vastly in excess to that of the mammalia.

If, then, the writer observes correctly, man presents the majority of still-born, deformed and of premature deaths. Should the comparison be made with the wild mammal the divergence is more marked.

The conclusion follows: Man with a living soul, or in the exercise of reason, shows physical deterioration.

Per contra, the animal without soul or reason has physically held its own. If true, these statements are worthy our careful consideration. Let us try to consider comprehensively and wisely.

The word childhood is used as the period from conception to maturity. This, as will be seen, is the word in its most comprehensive sense.

At conception the factors that enter the life of the embryo are largely the health and vigor of the parents. The purity of blood, strength of organism, predisposition, etc., all must enter.

During gestation the blood of the mother is the blood of the fetus. The life and health of the fetus is the life and health of the mother. This follows of necessity. From birth to maturity the life and growth of the child is mainly of his own volition, assuming there be proper food and care.

If at conception the blood of one or both parents be impure, if during gestation the blood of the mother be impure, if after birth the environment or food of the child be improper so as to render its blood continuously impure—we have the condition of impure blood from conception to maturity or for the entire period of childhood. Nor is the condition shown an anomalous one among the civilized.

Multitudes of such cases are seen in every generation. Being so common and so easily recognized the only wonder is that its true value is not duly weighed.

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* Read before the Ohio State Pediatric Society, Cincinnati, O.—Reprinted from *Mass. Med. Monthly.*

For illustration: Should impure food be given the mother during gestation, or to the child during infancy, it is readily seen the health is soon impaired. It is impaired through impure blood. We have spoken of this elsewhere.

But improper food is not the only means of blood impairment. There are many other ways. One of the most prevalent is non-oxygenation. In other words, improper ventilation of the blood as it flows in the life current leads to its impurity. It leads to its impurity in two ways.

1st. The venous blood needs oxygen to change to arterial.

Venous blood must not circulate in the arteries. Venous blood is impure blood and oxygen alone restores its purity.

2d. The chyle poured into the venous current needs oxygen to complete its elaboration or formation into blood. *Chyle must not circulate in the arteries.* Chyle is imperfect blood and oxygen alone completes its perfection.

In defective aeration we have these two faults: An arterial blood containing venous blood from the veins and chyle from the lacteals. What is the result? The subject whose life depends on such blood becomes physically weak. The age of the subject makes no difference as to the fact of impurity—only as to power of resistance.

The fetus in utero, the infant in arms, the child in the home are all subject to like influence. A fetus in utero may absolutely be killed by impurity of the mother's blood. Likewise an infant in arms or a child in the home in so far as they have the same powers of resistance. These facts are worthy of notice and must be taken into account in the consideration of the dread disease tuberculosis of which we speak later on.

We said one who receives such blood becomes physically weak. In what way? He is improperly nourished and a foreign element in his blood must of necessity act as an irritant. Let me illustrate. Suppose a healthy individual eats food that is indigestible and that does not contain a requisite amount of nourishment. He may partake of the food as often as he please but his system constantly grows weaker. Will any one ask how he may become strong? So in imperfect oxygenation. The blood contains an irritant and does not contain the requisite nourishment. The subject constantly grows weaker. He may become strong by a change of aeration. In the adult this change should take place. The adult has reason for a guide. Not so with the child. The fetus in utero, the infant in arms has no such monitor. He is subject to the whim or caprice, as it may be, of another. During the infant's minority his life and well-being are but as clay in the hands of a potter—molded at his will. Should this potter be an ignorant crank the child must everlastingly suffer.

Such is the condition or history of thousands in our land. These waifs who come into existence without thought or care, on the part of the parents, become the future men and women to populate and repopulate the country. Is there wonder at degeneration? Could it be otherwise? In this connection the question may be asked does not nature make an effort to reclaim her own? True, nature makes an effort to secure more oxygen by a hurried respiration in the child, and in a measure and in some instances secures it. Many times it is like the one who tries to gain strength by eating food more often.

If the nourishment be not in the food the rapid eating does no good. So in aeration. Rapidity of breathing only makes the irritant more apparent. It does not increase the amount of nourishment. While this is true in regard to the child, it does not apply to the fetus. The fetus has no respiration of its own. The oxygen of the fetus is from the mother's blood. If the blood of the mother contain but little oxygen, the fetus can secure but little, and vice versa.

The mother, then, during gestation, has it in her power to give or withhold oxygen. Does she in every case clearly understand this? If so, does she so act?

Thus it is seen that the child or fetus is hedged in, in a peculiar way in regard to an essential of existence. The mother wrongs her offspring through ignorance. The offspring must suffer the wrong through an inability to rectify. Since civilization began it has been so, and so it must remain until by a clear recognition of facts we change the conditions. Should a child be denied food the public at once cries out. The wrong must be righted. Should an imbecile be born in the home the State provides for its care. Should a child become wayward reformatories are at hand. Should a child be still-born—from want of oxygen—no man in the land has courage to raise his voice. "God moves in a mysterious way, His wonders to perform. He plants His footsteps in the sea and rides upon the storm." Thus the major part of the deaths in childhood are providentially explained. How consoling to the bereaved, "The Lord has given, the Lord has taken away, blessed be the name of the Lord." This, it seems to the writer, is a perversion of Scripture in the present instance. But there are other perversions.

We stated that during gestation the mother has power to give or withhold oxygen from the fetus. In health this is true. In disease, more particularly of the lungs, this statement should be modified. A woman who has diseased lungs marries. The disease is so extensive it is difficult for her to properly aerate her blood. The field for aeration is so small. She becomes pregnant. A double work must now be done. Not only must she aerate the blood for herself but also for the fetus. If the field were formerly small, how is it now? Either the mother or the child, or more commonly, both, must suffer.

It seems to the writer that one who maintains heredity is not a factor in the transmission of disease, does not clearly understand the situation.

Heredity is a factor not only in the transmission of similarities but also in disease itself wherever aeration of the blood is concerned. It must be true. So that whatever the view as to the intermarriage of consumptives—weak lungs beget weak lungs and weak lungs beget an infant with imperfect aeration of the blood—the primary step in the advancement of tuberculosis. Without this primary step the disease is unknown.

In corroboration of what has already been stated we herewith present the following typical cases:

CASE I. Mrs. G., æt. about 37—in good health—has had two confinements. On both occasions her children were weak and purple in color on delivery. For several weeks prior to confinement she staid closely in the home and took but little exercise. Her husband is several years her senior and is in poor health. At the third pregnancy—her last, I was notified of the above facts and ordered light exercise during the last weeks and small doses of chlorate of potassium three times a day. Child was more vigorous and less purple.

The ages of the children range about two years apart and the following is the present history twenty years later:

The eldest is delicate but is able to act as a clerk in a dry goods store. The second died at nine or ten years of age of asthenia. The third is now about twenty—the picture of health—and graduates the coming season.

The writer thinks a supply of oxygen during intra-uterine life has done thus much for him.

CASE II. Mrs. S., æt. about 30, in delicate health and has weak lungs. Has had three confinements. The children's ages range as follows: Between the eldest and second, four years. Between second and third, two years.

During gestation of second child the mother's health is unusually poor; indigestion, cough and abscesses on various parts of the body. At confinement instrumental delivery is used owing to size of the child—ten and one-half pounds. The father's health is good. Soon after the birth of this child it is observed the breathing is rapid and at times irregular. The child is fretful and nervous and seldom gives the mother a full night's rest. Every tooth a pang, every cold, a burden. Treatment is instituted early but is of little avail. Continued on these lines for upwards of two years. Dr. W., Sr., of R——, one of the best physicians of Northern Ohio is called in consultation and after a careful examination said, "It is my firm belief this child cannot be reared."

What is the treatment henceforth? A walk or run around the house once or twice each morning after being dressed. Result: The child begins to improve and continues to do so until he wants to be out of doors the entire time. Fourteen years have elapsed.

What is the present status at nearly sixteen years of age? Last year this boy was captain of a foot-ball team that won in nearly every encounter and this year he throws the sixteen lb. iron ball in a forthcoming athletic contest. Other cases could be given. In the face of these truths who can deny the value of a more perfect aeration?

Dr. F. N. Otis, in his classical work on "Genito-Urinary Diseases," '83, says in substance as follows: In gonorrhœa, if the purulent discharge come in contact with a healthy mucous membrane it causes the disease. He further adds, this is not true of syphilis. In this disease there must be contact and also an abraded mucous surface. The writer has long held and yet maintains that a healthy or abraded mucous surface and the contact of the living tubercle bacillus does not constitute tuberculosis. There must be something more, viz: The precedent state. Without this state there can be no transference of the disease or contagion. With this state the disease is readily transferred in the conditions named.

Herein is a radical difference of belief which must be settled before a clear light can be diffused. Let us endeavor to make this still more plain. Dr. Russell says—we quote his writings, for they have been scattered over the land by the Health Boards in various parts of the country—Dr. Russell says: "The tubercle bacillus, not being inherited, but passing into the body from the outside, how does it get there? Under what conditions does it pass from the outside to the inside of the body? Under what conditions does it live and propagate there? It is impossible to demarcate the answers to these questions as clearly as the questions themselves."—(Dr. Jas. B. Russell, B.A., M.D., LL.D., Senior Medical Officer of Health, Glasgow. Republished by permission by the State Board of Health of Massachusetts, 1896.)

The writer answers these questions briefly. The tubercle bacillus gets there by simply growing in a soil prepared. It passes and grows under the conditions of suspension of atmospheric influence. It lives and propagates under the same conditions of suspension. In other words, *if there be imperfect aeration of the blood from any cause and for any length of time, all the conditions named will be found.* On the accuracy of this statement the writer pledges his ideal reputation and challenges controversy. What greater assurance can be asked? We read in current medical literature that of the births in Massachusetts, fifty per cent. die before they are fifteen years of age. The deaths are largely due to tuberculosis. How sad a commentary on present civilization! The burden of rearing children is prior to fifteen. This burden falls largely and heavily on the elder part of every community, the part that practically needs support. Think of it! A child who has grown to near maturity and is educated to a point of self support is ruthlessly taken away. Can this condition be averted?

After twenty years of close study and accurate research the writer answers this question in the affirmative.

Give us the method at once. By legal restraint in marriage, by careful watching of the mother during gestation, by physical culture in the child, by accurate ventilation in the home and elsewhere, in a word, by a perfect aeration thousands of these youths may be annually rescued to years of usefulness. Is it worth the labor? The writer thinks it is.

In conclusion, with due deference to education, do not tie yourself too closely to the germ theory of tuberculosis, for rest assured in the near future it will be shown that germs have little value.

Tuberculosis is a constitutional disease, induced by imperfect aeration; is based on law and can be controlled.

The mathematics of the situation is as follows: The death rate from tuberculosis is in direct ratio to abeyance of atmospheric influence.

NOTE. In cases mentioned, Nos. 1 and 2, the ages of mothers are given. In the first instance, æt. 37 at third or last confinement. In the second, æt. 30 at second confinement. The reason is, these are the children referred to in paper, and wish to give mothers' ages at their birth.

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THE VALUE OF LOCAL SANATORIA IN THE COMBAT OF TUBERCULOSIS IN LARGE CENTERS OF POPULATION.*

By S. A. KNOPF, M.D.,

New York.

MR. CHAIRMAN AND MEMBERS OF THE LAENNEC SOCIETY: Let me congratulate you on the choice of the name which you have given to your society. The name of Laennec has always been to me an inspiration in my work on tuberculosis. We are indebted to this great man for having simplified the study of the pathology of tuberculosis, demonstrating once for all time the pathological unity of all tuberculous lesions. In clinical work Rene Theophile Laennec taught us the use of the stethoscope and how to auscultate the chest. To these two great achievements in phthisiology he added a third by demonstrating the curability of pulmonary tuberculosis. A better name you could therefore not have chosen for your society. The latter distinguishes itself from other organizations for the prevention of tuberculosis by doing work which not only consists in diffusing in the profession and the public a knowledge of the disease, but also in systematizing and stimulating the work on tuberculosis in the hospital, and educating its members. I cannot conceive of a more glorious mission for medical students, young physicians, and teachers of medicine. By such work you are helpful in solving one of the most difficult of the medical and social problems of our times. You are doing the work of the true physician, who should not only be a healer but also a teacher.

While you have not organized for any other purpose than to be helpful to others, I hope, nevertheless, that the public, the commonwealth, the municipality, and the State authorities, whom you are trying to benefit, will meet you in your noble endeavors and be helpful to you. The public at large and the families in which you are to practise should learn to appreciate, through your present work, the value of a family physician as one who is called not only to treat but also to prevent disease. By the periodical examination of all the members of families in your charge you will not only discover pulmonary tuberculosis in its very earliest stages, but by your knowledge of the constitutions of the various members of the family you will be able to institute proper prophylactic treatment and through timely judicious advice save many individuals from ever becoming tuberculous.

It has always seemed to me that the proper solution of the tuberculosis problem will also more nearly solve the problem of the family physician than anything else. I cherish the hope that the American family physician of the Twentieth Century will be duly appreciated, and that families will learn that, whether there is sickness among their members or not, to be visited by a skilful physician, trained in sanitary and preventive medicine, would be most advantageous to their welfare. Such families

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*An address delivered before the Laennec Society of Johns Hopkins Hospital, Baltimore.—Reprinted from *Medical Record.*

should realize that the timely advice given to them to prevent disease is worth a good consultation fee. The family physician should be paid, and well paid, for his services in protecting a family from disease by teaching them the proper way of living and the use of sanitary precautions.

The authorities—State and municipal—should facilitate your work by placing at your disposal the means to establish a sufficient number of institutions, sanatoria and special hospitals, to accommodate the great number of consumptive poor. The philanthropists should, in the same way, recognize your services by being helpful to you in your care of tuberculous sufferers without means.

This brings me to the main subject of my talk. I desire, if possible, to emphasize what has been already better said so many times and by others more familiar with your local conditions than I am, regarding the value of local sanatoria in the combat against tuberculosis in the large centers of population.

The first question which one might be expected to answer in relation to this subject is "What is a local sanatorium for the consumptive poor?" This question might best be answered by first stating what it is not. A local sanatorium for consumptives is not a sanitarium or health resort, nor an ordinary hospital or home. Such a sanatorium is not like a general hospital inasmuch as it treats only patients suffering from tuberculous diseases, and the equipments of the institution are particularly suited to the open-air, hygienic, and dietetic treatment of consumptives. A sanatorium for the treatment of consumptives is not a home managed by the gentle hand of a minister, Sister of Charity, or matron, but an institution where patients are treated, not kept. There the trained physician not only carries out the most approved hygienic and dietetic treatment of tuberculosis, but infection of other persons through the ignorance or carelessness of patients is made impossible by the proper training of the invalids and the constant medical supervision on the part of the physician and his assistants. To make the distinction between a home and sanatorium still clearer I may say that a properly conducted sanatorium for consumptives is not a danger to the neighborhood, but a blessing. In some German villages where sanatoria for consumptives have been in operation for over thirty years, the mortality from tuberculosis has actually decreased one-third among the villagers since the establishment of the institutions. The reduction in the mortality from tuberculosis among the villagers is to be explained by their involuntary imitation of the cleanliness and sanitary precautions practised in the institutions in their midst. On the other hand, in certain climatic resorts where patients live in homes or in hotels and boarding houses, the mortality from tuberculosis has been on the increase.

Instead of calling such an institution as described above a sanitarium, from *sanitas,* health, I prefer the word sanatorium, from *sanare,* to heal, because it is a better equivaalent to the German "Heilanstalt," the name given to the first institution of this kind by Hermann Brehmer, the principal founder of modern phthisio-therapy. A local sanatorium, or closed establishment, distinguishes itself from a health resort in many ways. Consumptives are sent to health resorts for supposed specific climatic advantages, and there the patients are under no restraint but can do precisely as they please. The local sanatorium, or the other hand, is situated near some large center of population with a view of curing the tuberculous patients in the same or nearly the same climate in which he will have to live and labor after his restoration to health.

The next question which the layman or physician, not familiar with modern phthisio-therapy, may ask is: "Can good results be obtained under such climatic conditions as are found near large centers of population?" I am the last one to deny the value of climatic conditions, such as high elevation, insolation, pine forests, and protection from cold winds, but I desire to emphasize that even the ideal climate for a consumptive, if there is such, cannot be considered as anything but a valuable adjuvant in the hygienic and dietetic treatment. If I should have to choose between sending a patient to such an ideal climate there to do as he pleases, or having him here in Baltimore in the hands of a conscientious practitioner who would carry out the most approved hygienic and dietetic treatment, I would certainly take the latter course, for I think the patient's chances for recovery would be greater in remaining here than in going away. Furthermore, I think there is hardly any city in the United States which has not within a radius of from one to three hours by rail some particularly healthy spot, with dry porous soil, free from dust, traffic, and miasmatic conditions, with relatively pure air, where such a sanatorium for consumptives could be built.

That the results obtained in such local sanatoria are remarkably good has been demonstrated in our own country by the Sharon Sanatorium near Boston and the Chestnut Hill Hospital near Philadelphia. There is one more reason why I favor local sanatoria for the treatment of consumptives coming from the poorer classes. To send a consumptive away where he can see his family and friends only at great intervals or not at all, because the visit to the institution is too expensive an affair, is always a risky undertaking. The consumptive suffers perhaps more than any other patient from that little recognized, but often very painful disease, homesickness, scientifically called nostalgia. By enabling our consumptive patient, separated from his family all the week, to look forward to Sunday when he can see his loved ones, we render him happy and hopeful. On the other hand, by removing him many miles from his home and former associates we only add another item to his sufferings. All those who have studied the psychic condition of the consumptive will agree with me how essential it is for his recovery to keep him hopeful and in good spirits.

The next question to be discussed would be: "Is there truly a need for such sanatoria?" As examples, I will only mention two cities, New York and Baltimore. In New York, we have about 40,000 consumptives of whom, I venture to say, more than half must be considered as belonging to the poor and living in tenement houses. There are in the city of New York only two or three hospitals which take chronic tuberculous patients, accommodating about six hundred. According to information, for which I am indebted to your distinguished chairman, Prof. Osler, you have in your own city about 10,000 consumptive poor, of whom at least 6,000 are dependent upon public aid. The one hospital in Baltimore which admits chronic consumptives, accommodates about twenty-two of this class of patients. This must seem to us all very, very little help in presence of such misery. What becomes of the consumptive who is too poor to pay a regular physician and too weak to go to the dispensary, very few people know, with the exception of the physician who may practise in the quarters of the poor or the visitors of the charitable organizations whose calling brings them in contact with these unfortunate sufferers. It is a strange but significant fact that for the poor consumptive, who is in the greatest need of municipal or State help, the least is done. We have veritable palaces for the insane, excellent institutions for the epileptics, even institutions for the cure of inebriates, but nothing for either the curable or incurable consumptive poor.

We hear daily of the great gifts our philanthropists bestow upon general hospitals, or for the creation of libraries, but donations for the prevention or cure of consumptives are of the rarest occurrence. I can only account for this indifference on the part of our philanthropists by the fact that they have not thus far a true idea of the suffering of a poor consumptive. I have often wished that I could take some of our Carnegies, Rockefellers, or Vanderbilts into the home of one of our New York tenement dwellers who is dying the lingering death of a consumptive. These philanthropists would appreciate better in one-half hour of actual inspection what misery there is in this than would be possible for them to gather from all the descriptions which could be presented to them. They could take in at a glance the life history of an honest laborer, who became tuberculous, but worked until the day when he was brought home in a fainting condition, never to leave his bed again. They would appreciate the devotion of a wife who took upon herself the burden of the support of the family from that day on. They would soon realize that the unhealthy appearance of the children which seems to stamp them too as candidates for consumption is due to the lack of air and sunlight in the badly ventilated, dark and dreary tenement home and to the evident underfeeding of these little ones.

Yet how little would have been needed to prevent all this misery! Six to nine months proper treatment in a well conducted sanatorium would probably have sufficed to cure the tuberculous laborer had he known where to go to at the first onset of the disease. But how relatively few city governments, how few philanthropists, take any interest in this great tuberculosis problem, which is just as much a social as it is a medical one. By a combined action of the statesmen, the city fathers and the philanthropists it would be easy, if not to stamp out entirely, at least to reduce the morbidity and the mortality of this disease in a very remarkable degree.

Statesmen and the philanthropists could work for the prevention of this disease in three ways: first, by erecting model tenement houses where light and air would be plenty and where the laboring man could enjoy the pleasures of home life and find that comfort and cheerfulness, the lack of which, in the majority of the tenement houses, so often drives him to the corner saloon. Secondly, by helping to erect local sanatoria for the treatment of tuberculous diseases in all stages, in children as well as in adults. Thirdly, by judiciously exercised charity they could take upon themselves the support of the family which through the sojourn of the breadwinner in the sanatorium is temporarily deprived of the necessities of life. Underfeeding of the children, because of the sickness of their father, could thus not happen, nor would the wife be obliged to leave the children alone and without care, because it would not be necessary for her to become the breadwinner.

Such conditions as I have pictured of the consumptive poor in New York exist also here in Baltimore and in many other of our large American cities. I believe a strong appeal to the philanthropists of your city to combine with your city or State government to remedy these conditions as far as possible would be timely. By having sufficient suitable hospital and sanitorium accommodation for the consumptive poor of your city, you will not only cure a large number of tuberculous patients and make of them useful citizens and breadwinners for their families, but you will suppress countless centers of infection, and thus do a curative and preventive work at the same time. Impress upon those to whom you are to appeal for help the following maxims: Tuberculosis, particularly in its pulmonary form, is a highly communicable disease. The patient not treated or educated in regard to the infectious nature of his sputum, is a danger to the community in which he lives, but particularly to those with whom he may come in close contact. The badly housed, the underfed, the overworked, or those who are enfeebled through excesses or disease soonest fall victims to the tubercle bacillus. According to the estimate of Prof. Osler, through whose courtesy I am privileged to address you this evening, there are over 1,250,000 cases of consumption in the United States all the time, of which I venture to say, a large majority are doomed to an untimely death. Yet tuberculosis is a preventable disease, and consumption and many of its other forms are in most instances curable. Consumption is a disease of the majority, and therefore the majority and not the minority should be taken care of. The consumptive poor taken care of in time, treated and cured, will in the end cost the community less than the consumptive not taken care of in time but allowed to die in his home or the almshouse.

Consumption can be prevented by proper sanitation, training, and education; it can be cured in nearly all climes by proper hygienic and dietetic treatment, under constant medical supervision, at home or in a sanatorium. In short, to combat tuberculosis we must be permeated with the thought that it is a parasitic, but a preventable and curable disease, and that everyone, rich and poor, the physician and the layman, must do his duty in the combat of the "great white plague." Let the words of the immortal Pasteur be inscribed on the flag of this American Anti-Tuberculosis Crusade: "It is in the power of man to cause all parasitic diseases to disappear from the world."

16 West Ninety-fifth Street.

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THE POWER OF SUGGESTION.

By (Rev.) Helen Van-Anderson.

Very few persons realize the susceptibility of the child mind to the inadvertent suggestions in what he sees and hears, nor how important it is that only that which is lovely should surround him. The child in his earliest years has not the judgment-capacity to reject or change mental images, and being eager for knowledge will grasp with avidity and become wholly absorbed in whatever idea engages his attention. If it is good, its fruits will be manifest; if evil, manifest also.

This was strikingly illustrated by an incident related by Dr. Sherman Davis at the Mothers' Congress recently held in Washington. Dr. Davis referred to the children's page of the Sunday paper as being the regular Sunday morning amusement provided his little nephew of four. On one occasion, the picture that greatly attracted and absorbed the child's attention was that of a most grotesque and remarkable dwarf, who was the central and only figure in a large field where he was doing a variety of astonishing things. It was noticed that the child seemed spellbound and was loath to leave the pictures. The next morning the family remarked that the little boy was going about like a hump-back. On the second morning it was still more evident, and on the third morning the child could not straighten his back. A physician was called in, and, as no physical reason was found by which to account for this peculiar condition, light was shed upon the matter by the conclusion that it was wholly the suggestion received from the picture in the Sunday paper. A vigorous effort to displace that image with one of an opposite character resulted in the child's emancipation.

Obviously this is not the only child who suffered because of his vivid imagination. All children are more or less sensitive and should be protected from everything that might lead to such dire results. To have a little child in the presence of a person whose facial expression is unpleasant or ugly, or who gives way to fits of temper and thus displays the worst side of human nature, is very harmful. Many a child has formed habits wholly foreign to his nature because of such associations. Nurse-girls or governesses (if a mother is obliged to have such) should be chosen with reference to their looks and manners, as much as to their professional qualifications. I heard recently of a family of four children who acquired the habit of stuttering from a stuttering nurse.

Not a sight, sound, or condition escapes the watchful eye of a bright, active child; and to put into expression every new thought or fascinating mental picture, whether good or bad, is an irresistible instinct. This is why stories, amusements, pictures, and everything that feeds a child's mind should be suggestive of only that which would place beautiful and happy pictures before his mental vision.

"Oh, you are the sweetest darling in the world!" exclaimed a fond grandmother, when entering the room where her little six-year-old grandchild sat playing. "No, Grandmama; I don't think I am," replied the boy, gravely, as he left his play and offered his lips for a kiss. "*Why*, darling?" questioned Grandmama, pained by the expression on the sad little face. "Oh, because —— (mentioning a male relative who frequently got angry with the child) says I'm very bad, and that when I get to be fourteen probably I'll be hung!" Grandmama related this with tears, and added that it nearly broke her heart to have such things said to him, for he "took them so to heart."

Yes; that it is just the trouble. The children take things *to heart*. They become so absorbed, so *possessed* by an idea, that it is of vital importance what the idea is.

There are so many beautiful pictures now, so many story-books that are all we could wish, so many nature-secrets revealed in such attractive and interesting form, that it does not seem possible any mother could make a mistake, if she took the time to find these things for her children and gave herself to enjoying with them all the inspiration to be gained in these ways. Instead of those pernicious, outrageous pictures in the Sunday papers, why not have such volumes as Hamilton Gibson's "Sharp Eyes," Ernest Seton Thompson's "Animals I Have Known," and scores of other true and beautiful books and pictures? Why not take this hint on the power of suggestion with children and radically change, if need be, our whole household and its habits for the sake of the little children whose welfare should be considered first of all?

Apropos of this discussion, a mother told me a sweet experience she had after talking with her little boy about love. She had never tried to teach him the relation between feeling and action, but on this occasion sought to make plain the relation by appealing to his own experience. He had listened eagerly and apparently grasped the idea that when his heart was full of love his lips would be filled with love-words. She must have drawn a beautiful picture of love and its expressions. At any rate, the child was wonderfully happy, and all the next day he would frequently leave his play, run to his mother, put his arms about her neck and ecstatically exclaim: "I love you *so much*, Mama! What *can* I do?"

"To think," said the mother, in speaking with me afterward, "that he could understand and feel so much of what I thought was beyond him! And ever since he has been so thoughtful, so loving and obedient! I never had such an experience. I had loved him, of course, and suffered his expressions of love; but to teach him that he could be governed by love, and that it would teach him how to be a helper in the home-making by letting love possess him, had never occurred to me. Now a mere hint, a suggestion of the love idea, wins his interest at once."

Beautiful pictures on the walls, flowers, pets—all the splendid suggestiveness of real Nature—should so far as possible be in the environment of the child.

As children grow older and go to school, the learning of fine poetry is one of the best accomplishments and also one of the greatest aids to character-building. The suggestiveness of a simile from Nature, a reproduction in words of beauty of sacred memories, moments of unselfish zeal to share something with somebody—all these can be imprinted upon the plastic memory with a hundred-fold more power if clothed in language that in itself is a suggestion of the deeper feelings of the soul. And what child does not know, even if he cannot express, the impressiveness of a never-to-be-forgotten moment when for an instant he became conscious of a higher self within him?

Study carefully the temperament and tastes of your children, that you may put before each the suggestions that will best arouse within him his own constructive, beauty-making powers. Let nothing be said before the little one that will not bear repeating, and nothing done that may not be imitated. "The greatest characteristic of early childhood is the power of imitation," says Prof. Elmer Gates.

Of the grandeur, beauty, and joy in the

world, seek in some simple manner to make the little children conscious, and that they too, in a way, are inlets, great or small, of what they see, hear, taste, or feel.—*Mind.*

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DRESS REFORM.

By Winnefrede W. Metcalfe.

In the very earliest times, clothing of any kind, we learn from a study of anthropology, originated in the desire to adorn the body. The nose-rings, earrings, bracelets, girdles of beads, shells, metals, tails of animals, feathers, fringes made of skins—these crude decorations constituted the only wearing apparel of the earliest people. They lived in a mild climate and did not need to provide for warmth. Though this ornamentation was grotesque in the extreme, yet it was a thing of pride and beauty to them. As mankind advanced, there was also a change in his clothing. As he moved to colder climes, his body needed protection from the cold, and for this purpose skins and furs were used. In this protection of the body we find manifested for the first time the idea of service or use. The gradual change from the savage state to that of civilization effected corresponding changes in dress. The clothing of skins was replaced by that of woven material, made at first of crude, coarse stuffs, and later of fabrics of finer quality. There were more garments worn, and these were of greater variety.

Clothes now served the purpose of the wearer in the different industries and determined the rank or position of the individual socially. Here was drawn the distinctive line between the man and the woman. Man continued to grow in power, both physically and mentally, and also in the exercise of his will, but woman was allowed to progress no faster than her lord decreed.

In this paper I am writing entirely of the general history of women and not of the exceptions that have marked the superior power of a few who have served as beacon lights to womankind, encouraging her on and holding aloft the ideal of what she might become would she but open her eyes to the truth. The lower classes of men wore the short, close costumes; those of distinction, office, rank, wealth, such as nobles, priests, scholars, and men of leisure, wore the long, trailing robes.

As the age of slavery ceased among the different nations of earth, when the slave owners from olden time to the present were forced to emancipate their slaves and servants and assume themselves a place among the working men of earth; as the different industries have developed, and the many and varied professions have become established, man has continually changed and altered his attire to suit his work. Men, in their evolution of dress, have been guided by notions of convenience. Utility has been their model of fashion to the present time.

But let us consider the woman's side. From our own day, way back through the dim vista of years to the beginning, woman has been man's slave and servant. It is true that in a few countries woman is at last beginning to feel what freedom is, to realize what it means to be mistress of her own body, mind, and soul. But this has only been for a very short time. During all the past ages she has been man's servant, and she has been taught very strictly to keep her place. Yes, even though God taught the world by the divine Mary what a blessed privilege it was to be a woman, even her significance has not until lately been fully recognized. The body of woman has not been revered or even respected by man.

Because of this disrespect, ownership, selfishness of man, woman has been shrouded, hooded, covered and draped to conceal her from public gaze. An Arab guide in Egypt, when asked by Mrs. Lucinda Stone why his wife, like all Egyptian women, wore the veil hanging just below her eyes to conceal her face, replied, "She's 'shamed 'cause she woman!"

But every child is a part of its father and mother, and every girl as well as every boy in the family receives the father's element. This element of superiority, freedom, indomitable will, has been working out its salvation in the feminine heart and mind amid the struggle of the centuries, and the stronger the men have become the stronger birthrights they have given to their children.

Little by little, slowly but surely, parents have opened their eyes to behold the subtle power of their daughters. When freedom is once felt throbbing in a human soul it is like the first taste of human blood to the man-eating tiger. The desire and passion for it are never satisfied until gratified in full. The soul possessed of freedom becomes a giant, and giants in power our women are fast becoming in this the dawn of the twentieth century.

In speaking of the dress reform of women, Mr. B. O. Flower said in the *Arena:* "The present age is richer in promise of fruition for womanhood than any previous cycle. While science has been unlocking the silent chambers of nature and bringing to light a world's study of life and evolution; while invention has been knitting nations and races into one great family, and establishing means by which our earth may be transformed into an Eden as soon as the savagery of man's passion and the selfishness of his instinct are subdued; while civilization has in ten thousand ways been making greater the possibilities of life, attainments and joys, woman in Europe and America has been slowly awakening to her rightful estate. Not as the silent subordinate of man, but as his free, open-souled, clear-sighted companion and equal."

In her progress and in her dawning consciousness of her power and her rights I see the prophecy of a higher and purer civilization. The day star of reason and sober judgment is breaking upon her vision; she is ceasing to be a mere echo of husband, father, and brother, or a reflex of conventional thought. She is no longer swayed solely by sentiment. She is now asking herself, when questions arise which relate to her, and about which she has never seriously thought before, "Is it right; is it just? Is it in accordance with common sense?" The dead past, over whose mound she has so long knelt, no longer holds her in its thrall. The impulse of a new life, strong as the voice of spring to building trees and springing flowers, is urging her forward. Not the least among the questions which are pressing upon the thought of our leading women is that of rational dress. "I believe there are forces at work which will bring about, at a far earlier day than most persons imagine, as great a revolution in public sentiment as that which overcame conventionalism in regard to the sphere of woman." It was not many years ago that Mr. Flower wrote these words, and I believe the time he prophesied is fast approaching. Indeed, the beginning of that time is already here.

To-day in America we hear much of dress reform. There are dress reforms of all sorts and kinds. Some of them are very crude, to be sure. The first of anything is crude. But the ugliest and most incongruous things in dress have been done away with, and we begin to see the lines of beauty taking shape. Many women, graduates of our colleges and universities, are giving their earnest thought to this question of health and dress. The "one dress" idea will never be adopted, for, the ideals of Amrican women are different from those in any other country. And among scholars, scientists, artists, authors, philosophers, poets, in the realm of mechanics and business, the women are fast taking their places beside our men. They have created science of their own, raising what has always been considered a menial service, that of the home, to a science and an art. These different occupations demand clothing and costumes suited to themselves, and at last the "eternal fitness of things" is beginning to establish and manifest its truth in the feminine fashion and dress of this period of the twentieth century.

Art is young in our country as yet, but it is growing. During the colonies' long struggle for freedom, the ideal was slumbering, but when the United States became a reality and our Union was at last a fact, education began and the American art was born; and when true art is born and matured in the lap of a nation the art child points heavenward, and this means the refining and ennobling of its people.

In our life and art, the woman's ideal stands beside the man's. She believes in the glorifying of the body, mind, and soul. Health of body is power to serve the physical ideal of purity, strength, and grace. Health of mind is power to seek truth untrammeled and unhindered by prejudice. Health of soul is freedom to relate itself without fear to the oversoul. Permeated with the health of body, mind, and soul, she is dedicating a new and more perfect whole to the service of God's truth and beauty.

There never was such freedom of choice in dress as there is to-day, because women are mistresses of themselves and demand respect. And the men of progression, who are pure-minded, liberal-hearted and purposeful, are wishing us God speed on our way. Purity of thought will allow the individual to dress according to its needs.

I believe in the dress that serves the purpose and beauty of the individual. This is to be the dress reform of the future. Utility will demand a service of its own. Art will ornament. We are leaving the imitative process behind. Personality and responsiveness to the good and beautiful are moving us on at a very rapid rate. The time will come when fashion, as we now understand it, will be a thing of the past.

The ideal of woman to-day is the vital, healthful woman, full of originality of thought; her rouge is the elixir of life that tinges the petals of the rose; the movements of her body are attuned to the infinite laws of nature; her smiles are the sunbeams of a free soul. What is to be the *dress reform* of the future? It will be individual, according to the laws of health, service, beauty.—*The Industrialist.*

ARE WE APPROACHING A TABLOID AGE?

"Have a tabloid with me, will you?" said Algernon to Marguerite, as they sat on the veranda at eventide. The hour had arrived at which the people in "olden times" were wont to gather around a table and eat various and curious concoctions from dishes. "Do you like spring chicken tabloids or do you prefer some of those ham-and-egg tabloids? Perhaps you would like the cheese-and-cracker tabloids that I have in my other pocket. Isn't it strange that our ancestors actually cooked things to eat, and then fed themselves with forks? It seems almost incredible that men and women actually wasted precious hours at stuffing their alimentary canals with food. They chewed everything like a goat. No wonder their teeth gave out and the dentists built palatial homes. Think of the indelicacy of actually chewing and salivating food! Babies, you know, sucked their milk from bottles in those days. Now we give them milk tabloids."

The above is what we are coming to in about the year 2078, unless some one heads off this tabloid craze. We will be in the "tabloid age" when we won't stop to eat anything or do anything naturally as the All-wise Maker intended us to do. We will take all our food, all our literature and all our pleasure in tabloid form. It will be an age of condensation when all the juicy joy will be compressed out of life.

We are led to make these observations by a recent announcement to the effect that a Chicago woman of education and fine accomplishment had just invented and had patented a "pork-and-beans tabloid," which had received the highest enconiums from the chemists, and was pronounced to have the highest food value of any tabloid yet produced. In fact, it is claimed that a pint of these tabloids would keep a man alive a whole week if he took no other nourishment. It was also confidently predicted that she would make a fortune out of her invention.

There is no doubt that this "pork-and-beans tabloid" will be good for some purposes. A few barrels of them might enable a man to get to the North Pole, or a few hundred barrels might take an army across a desert. But, very few of us are going to the North Pole and none of us is going out of his way to look for a desert. Why should a woman of brains and education devote her intellect to making man a tabloid-eating animal as the Simians of Africa munch cocoa-nuts?

The tabloid is the juiceless and savorless fruit of a hurry-up age, when humanity has become seized with the delusion that there is not time enough for anything, that human ingenuity must expend itself in creating devices for outwitting nature. It is part and parcel of the incubator idea, or "forcing process" in life. We "force" strawberries by hot-house methods out of season and then wonder why they have not the "strawberry flavor." We jam a lot of eggs through an incubator, and when the yellow toddlers emerge, we place them under the care and protection of a painted wooden hen—and then we wonder why there is deterioration in breeds of poultry.

It is time to call a halt in the tabloid craze. The Creator did not build us on the tabloid plan. He gave us teeth and salivary glands, and plenty of time to eat and digest three meals a day. We do not want our food or our literature in tabloid form. The abominable "quick-lunch" habit is the forerunner of a tabloid age, when all our alimentary nourishment will be carried in the vest pocket. The tabloid idea is a delusion and a cheat. It should be discouraged with moral suasion. *The tabloid must go.—What to Eat.*

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ENERGY.

Recently a giant coast-defence gun was installed at the Sandy Hook defenses. This monster of destruction is nearly fifty feet in length, and will cast a projectile twenty miles. It is not the size, nor the weight, nor the appearance of this gun that makes it the striking exception among cannon. It is its capacity to apply force so economically that the astonishing range is given. In other words, it is a machine for the employment of energy in a specified direction, and its distinction is due to the effective manner in which it employs energy.

Every man's body is a vehicle for the expression of energy; just as it is a manufactory for producing energy. You eat so much food, drink so much water, and under proper conditions your body will produce so much energy. To try to save this energy is as futile as trying to grasp water in the hand. It will escape back to the great reservoir from which it has been drawn. The thinking man is concerned in the manner in which he shall direct it, so that he may obtain benefit from it. Some work, and for their work they require so much energy, and the body gives forth so much. Theirs is the ideal method of balancing affairs. Others avoid all manner of physical effort, and its release from the body must manifest itself in other ways—in thought, in dissipation, in things we call crime. These all arise from the same source—their only difference is the different channels in which the energy stored up is permitted to escape. This is a truth worth pondering over once in a while. Your body is producing energy all the time, and it is either using it as your intellect directs, or it is giving it forth futilely. Employed intelligently, it may be made to accomplish things in many directions. Allowed to escape haphazard, it accomplishes nothing beneficial.

Return to the great gun. The powder furnishes the energy. It is effective only when the energy is confined and directed. Touch a match to the same charge of powder in the open air, a flash, a puff of smoke and the energy is free, without accomplishing anything. Confined behind the projectile in the rifled barrel of the gun, it expands in a desired direction, and it can throw a thousand pounds many miles. Study your avenues of energy expression; control them, and make yourself the being you should be.—*Vim.*

HEREDITY.

DR. ALEXANDER SMITH, of New York, in the *Medical Record* discusses in a very interesting manner some questions in heredity. He calls attention to the fact that since the publication of Koch's paper upon the isolation of the tubercle bacillus ideas upon the influence of heredity have been considerably modified. Many diseases formerly supposed to be directly transmissible from generation to generation are now acknowledged to be the result of direct infection. This being so it is possible that many other diseases may be eventually classed under the same head. Tubercular disease, formerly considered an heredity disease almost exclusively, is now known to be infectious, and some pathologists say always the result of infection. Another disease quoted by the author is gout, which is acknowledged to exhibit hereditary tendencies, but even in this disease there are found those who do inherit a tendency to it by their habits of life, while still other individuals with the same inherited tendencies commit great indiscretions in diet and do not develop the disease.

The question of rheumatism being an inherited disease is debatable, but the author submits that recent observations rather suggest only a transmitted vulnerability. Carcinoma is placed in the same class, with an acknowledgment that it is difficult to explain the situation on the ground of heredity and occurrence of cases in succeeding generations. The following quotation is rather startling:

"Dr. Billings showed that longevity in the State of Maine in proportion to the population is greater than in any other State in the Union. He likewise showed that carcinoma is more prevalent in that State, relatively to the population, than in any other State, and that *very many of these cases of carcinoma occur after seventy years of age*—(italics ours). In these it would be difficult to show the influence of heredity."

Cardiac disease is discussed in relation to heredity. "So far as its direct transmissibility is concerned, all one can say is that the underlying conditions which lead to the development of cardiac disease may be transmitted." The same thing is said with regard to renal disease and possibly arteriosclerosis, though as the latter disease develops under forty-five years of age hereditary tendency cannot usually be traced. Conditions of the nervous system are deemed transmissible by heredity, as also is mental derangement. The tendency to development of the alcohol habit is probably due to a deficient mental control, which may be inherited.

Racial peculiarities as to heredity have been long recognized, as for instance, the colored race are susceptible to tuberculosis and pneumonia, but not to yellow fever, while the Jewish race shows a very high degree of resistance against the tubercle bacillus, but is susceptible to the causes of neuroses, diabetes and affections of the skin.—*Cleveland Medical and Surgical Reporter.*

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EPILEPSY.

ONE of the most important steps to insist upon is that the patient shall lead a quiet life, if possible a rural life. A moderate amount of exercise, both physical and mental, is necessary. The diet is also important, and some of our best authorities insist that where bromides are being administered, very little salt should be given or allowed in the food, because the bromides will then take the place in the system that is usually occupied by the chlorides. Milk is the most valuable article of diet in these cases. Fresh vegetables, like peas, string beans and spinach, with very little salt, is also desirable. Broiled meat in moderation, once daily, and baked apples and stewed fruits, with a soft-boiled or soft-poached egg now and then. A fair amount of cereals for breakfast, and toast or stale bread complete the dietary for the average patient.

Cold baths with thorough rubbing the first thing in the morning have a wonderful tonic effect, and are also of great advantage in encouraging the proper action of the perspiratory glands. Aside from the specific drug, which is the bromides, there is nothing that tends more to keep the stomach, liver and kidneys in good condition than phosphate of sodium taken in teaspoonful doses—one teaspoonful in a cup of hot water, one hour before breakfast.—*Medical Sentinel.*

GOUT AS A FUNCTION-FAILURE.

S. W. MacIlwaine enters a protest against the narrow view so frequently expressed that gout finds its essential expression in joint disturbance. We should rather take a broader view, and look upon it as a failure of the metabolic functions under conditions that produce no such untoward results in the majority of people. The essence of the disease is the production of imperfectly soluble waste products difficult of elimination. The cause of gout is therefore function failure. It is intrinsic in origin, and treatment must be directed to the individual, to the re-establishment of his deranged functions. Roughly speaking, the bulk of the metabolism occurs in the muscles; further, the commencing channels of excretion are emptied by vigorous muscular contraction. Exercise flushes the joints with their viscid and sluggish fluids. Experience teaches us that a man on a rational diet, and in the enjoyment of exercise necessitating the daily vigorous use of all his muscles, does not suffer from gout.—*Medical Press and Circular.*

TO REMOVE SUPERFLUOUS HAIRS.

First cut the hairs as close to the skin as possible, dip a piece of pumice stone in cold cream or cold water, and rub the place where the hairs grow as often as possible, commencing gently at first, as it may cause slight irritation of the skin. Do this twice daily for at least three months, then gradually decrease the friction.—*Public Health Journal.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. Patchen, M.D.

IN CRITICAL MOOD.

Our knowledge of health and the conditions which are most favorable for its production (for whatever else health may be it is certainly a product), is still so limited and uncertain that there necessarily exist differences of opinion not only in regard to what constitutes its essentials but, also, in regard to what is the best manner of using them.

For the same reason it is, to say the least, a violation of good form, for any one, even though he may occupy a position which entitles his statements to be accepted as authoritative, to insist, with too much vehemence and acerbity, that only such ideas as he entertains and promulgates are correct and entitled to credence, or that only such methods as he advocates and employs are practical and worthy of adoption.

Not until all of the facts pertaining to any subject have been definitely ascertained should any statement in regard to their practical application remain unquestioned.

Truth is presented to us as though it were engraved upon the surface of a sphere, and the ability and opportunity to decipher it, in its entirety, is very seldom vouchsafed to any single mind.

The usual way of acquiring knowledge is by collecting and collating the fragmentary bits which numerous investigators have acquired by studying any given subject from different standpoints. Hence, time, patience, discussion and even criticism of each others' ideas and impressions are necessary for its full development. We wish it to be understood, therefore, that only an earnest desire to arrive at the truth prompts us to question the correctness of certain statements concerning the application of hygienic principles and methods which emanate from accepted sources of authority.

HOLDING THE BREATH.

A merry war is being waged between the editors of two monthly periodicals, each of which is devoted to the dissemination of ideas and principles pertaining to health and hygiene, over the question whether or not it is injurious to hold the breath. One contends, with an air and emphasis implying superior wisdom, that the breath should *never* be held, giving as a reason that if held, even for half a minute, the blood will make a complete circuit of the body without receiving a fresh supply of oxygen or without being able to discharge the poisons it has accumulated during its journey.

The other is just as positive that holding the breath is beneficial, claiming that the momentary expansion of the air-cells, by this means, increases their strength and capacity.

Our criticism is, 1. That circumstances alter cases. Each contestant, under certain conditions, would be right but, under other conditions, would just as surely be wrong.

2. The reasons assigned for upholding the affirmative side of the question are not, we are inclined to believe, adequate and satisfactory. We sincerely question the accuracy of the implied statement that the system is injured by the presence in the

lungs of any substances which, naturally, find egress through them, but which are detained, for a short or even a long period of time, by holding the breath. The lungs are not elaborative organs and therefore normally discharge only such matters as are brought to them in a perfected state, and perfected physiological waste products, unlike those which have failed to reach the completed stage, are neither injurious nor difficult to get rid of. Although they are promptly dismissed from the body as fast as they are formed, it is not because their prolonged presence is harmful but because the system has no further use for them. They are the ashes of physiological combustion and their immediate elimination is necessary to make room for new supplies of fuel.

Carbon dioxid, more popularly known as carbonic acid, the principal ingredient of the perfected waste that makes its escape by the way of the lungs, is not intrinsically harmful; it is simply mechanically obstructive. Were it not that its presence in the lungs excludes the much needed oxygen, it could be breathed with impunity.

It is true that noxious substances accumulate in the system, to some extent, in the absence of oxygen from the lungs, but it is also true that something more than the mere presence of oxygen is necessary to insure their removal. This additional factor is *functional activity.* The active co-operation of these two factors results in oxidation which is simply the putting of oxygen to use. Oxidation, therefore, and not oxygen, is the essential and active cause of elimination, without any reference to the particular channel through which the prepared matter makes its exit.

Holding the breath produces two effects of an exactly opposite nature. While it deprives the system of oxygen by the use of which noxious ingredients are changed into completed, harmless forms of waste, for final dismissal, it at the same time and by the same means lessens and retards the formation of these ingredients by diminishing and retarding the chemical changes by which they are produced.

Moreover, as the removal of all injurious substances from the blood can be accomplished only by oxidation—oxygen plus functional activity—and as the amount of oxygen thus put to use, at any time and for any purpose, is determined by the demand which the functional activity of the body creates for it, it follows that no matter to what extent poisonous substances may have accumulated in the blood, increased respiration, unless accompanied by a corresponding increase of functional activity, especially of the muscles, can do but little, if anything, toward their destruction.

This physiological principle finds practical confirmation in the manner by which opium poisoning is successfully treated. There exists in these cases the most urgent need for oxygen, but to put it to use in an amount sufficient to make it of any practical service, this need must be reinforced by muscular action in some form. This latter requirement is usually supplied in a satisfactory manner by compelling the patient to walk briskly up and down the room.

So far as we can see the claim that it is injurious to hold the breath while certain muscular movements, in the form of "exercises," are being briefly executed is unsupportable. On the contrary it is perfectly natural, as every one knows, to take an increased breath, and hold it, when any special muscular effort is about to be made.

Dr. Geo. H. Taylor in his valuable book "Health by Exercise," calls attention to this fact and gives the reasons for it. He says: "It will be noticed that an increased respiratory effort does not succeed but immediately *precedes* the muscular exertion, and is simultaneous with the suggestion of the *will* which it seems to render more vehement and energetic. As the arm is raised to strike, the breath is drawn in; and, if a strong blow is contemplated, the glottis is for a moment closed, and a strong pressure is exerted upon the contained air of the chest, to force, as it were, the blood to take in an increased quantity of the power-liberating element. This involuntary "holding the breath" is, without doubt, a very important aid to the respiratory act. It at the same time expands the chest and aids by pressure of the respired air to accelerate and increase the quality of oxygen brought, in this way, into contact with the blood."

We are not unmindful of the fact that cases may and do exist in which not only holding the breath but lung gymnastics of any kind will prove to be injurious. Every respiratory effort which fills the lungs with air causes a corresponding volume of venous blood to flow towards the lungs to meet it. In certain conditions of invalidism the air-cells may become so weakened that under the influence of frequently repeated, deep and strong inhalations the venous blood may enter the lungs faster than the enfeebled heart can remove it. When this is the case, congestion and even inflammation of the lungs is liable to occur, or, more serious still, one or more of their blood-vessels may be ruptured.

Such disastrous consequences, however, do not happen to persons whose organs and functions involved in the respiratory act are free from disease, nor need they occur even when disease exists if the respiratory exercises are taken in the proper manner.

3. Had the time and mental energy spent by the editors in quibbling over the simple and comparatively unimportant manner of breath-management, been devoted to setting forth the objects, effects and mechanism of respiration, their respective readers would have gained much more useful and practical knowledge than the acrimonious discussion has afforded them.

They would have learned, among other things, that there are other uses for respiration besides that of air-getting. That the abdominal form of respiration is the natural form, the only one which can be habitually maintained without injury to some portion or function of the vital mechanism.

That the body is so constructed that the respiratory excursions of the diaphragm are hardly less necessary to the healthful activity of the organs *below* it than they are to those *above* it.

That at every inspiration the abdominal organs are compressed and moved against each other and, by these means, receive incitations of touch and pressure which stimulate peristaltic action and aid them in their functional work. That at every expiration the diaphragm is made to exert a suction or lifting force which not only assists the flow of venous blood towards the heart, but is sufficient to sustain and maintain all of the organs contained in the abdominal and pelvic cavities in their natural position.

That the air of expiration is used by the diaphragm to regulate the force and duration of the tones of the voice, both in speaking and singing. That as far as air supply is concerned respiration is the servant of the blood. Its whole duty consists in keeping the blood supplied with oxygen up to the point of saturation. More it cannot do, and less it will not do provided the mechanism, by and through which it operates, is properly strengthened by cultivation.

That between respiration and circulation has been established a definite ratio of action which cannot be changed, for any length of time, without deranging the health.

That any extra demand for oxygen, called forth by muscular exertion or any thing that quickens the circulation, is met by deeper and more rapid breathing. That if more oxygen enters the lungs, even by enforced breathing, than the blood has use for, it is exhaled in the next breath without having served any useful purpose whatever.

That since the blood parts with its oxygen only as a legitimate demand for its use arises in some part of the system, the volume of respired air must be variable and irregular. To meet this irregularity, automatically, the respiratory process has been placed under the control of the sympathetic nervous system, where its action is maintained independently of conscious thought or attention.

That it lies within the power of every individual to increase and maintain his breathing capacity far beyond the limits required by the ordinary demands of life and that it is his imperative duty to do so.

That any proposed method of cultivating respiratory power and capacity is right or wrong according to whether or not it recognizes, and is in complete harmony with, the physiological law regulating this matter.

That compliance with this law requires that every inspiration must be accompanied by enough physical effort, in some part of the system, to utilize, for nutritive purposes, the increased supply of oxygen taken.

That in selecting suitable forms of exercise for the purpose of lung development, persons comparatively healthy and strong are subject to scarcely any restrictions as to either means or methods. But for invalids and those of delicate physical organization, much medical knowledge and discrimination are necessary, since it is difficult to find a way by which such persons can take exercise in conformity with a law which requires the direct and active co-operation of physical and respiratory effort.

If, we repeat, the readers of the periodicals referred to had been supplied with even the above mentioned facts and principles concerning the powers and duties of the function of respiration, each one would have possessed knowledge which would have rendered the discussion of breath-management both uninteresting and unnecessary.

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ADVICE TO BOYS.

Dr. Fred C. Valentine, in summing up an able paper at the meeting of the American Medical Association, held at New Orleans, May 5-9, gave this earnest advice to boys:

If you want to be a healthy, strong, successful man; if you want to live a happy life, do not smoke, do not drink alcoholic beverages, do not associate with corrupt people, and do not indulge in any vices. If you have been so unfortunate as to lose your health for any of the above reasons do not take the advice of an advertiser, do not take advertised drugs, but consult your physician.

PHYSICAL CULTURE: COUNTERACTIVE, PREVENTIVE, AND REMEDIAL.*

By Dr. Albert Whitehouse,

New York City.

In presenting this paper I propose to treat of the subject in its counteractive, preventive, and remedial aspects. At the outset, however, I would like to say something of it in a general way.

At the present time there is a great deal of attention being given to physical culture. It has come in the natural course of things to satisfy a demand. As the term implies it is the cultivation of the physical powers, and that covers quite an extensive field of effort taken in its broadest and highest meaning. It is much more comprehensive than is generally considered. By many it is thought to be merely some form or forms of exercise to benefit the health or to develop the physique. Really exercise is only a factor. It is possible to follow a rational course of physical culture without including any exercise at all. Besides exercise, which is usually advisable to a more or less extent, due consideration must be given to diet, general and personal hygiene, bathing, clothing, sleep, habits, breathing, and mental attitude. Then, the physical can not be treated rationally and with the most desirable results as a separate and distinct state. Man's three natures, the physical, psychical, and spiritual, are so intimately connected that his approach to physical perfection is to the degree that his three natures are harmoniously related. It was an age of materialism when the Greeks attained a high degree of physical perfection, and because of no consideration being given to a higher relationship beyond the purely physical their efforts were not rational, and proved their futility by the results which followed. A sound mind in a sound body was their acme of attainment—*ne plus ultra.*

To-day the most rational system of physical culture is a comprehensive one which adapts itself to individual needs and conditions and gives due consideration to the higher natures of man. It is spoken of as higher physical culture as distinguished from the varied interpretations or so-called systems propagated from a purely physical standpoint, and which are being disseminated and promulgated broadcast in the present stage of development of physical culture as a science. Shall we call it a science, or is it an art rather to be practised? We often see the term "Scientific Physical Culture."

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* Read before the Hundred Year Club, April 14, 1903.

Man may be considered primarily as a physical being on the physical plane, but with a spiritual destiny with which he is while in the physical connected through his psychical forces, or he may be, as some claim is more correct, regarded as the physical expression of a divine origin and primarily under spiritual influence.

As we have to deal with man in his physical environment and how best to meet it, it seems to me that the physical should be taken as the basic point from which to study him and endeavor to co-relate his physical being with natural law.

Now for the *raison d'etre* of physical culture to-day. Physical weakness and sickness are too much in evidence. I am not one of those pessimists who are continually bewailing that mankind is degenerating, and ever seeking to prove it. I grant there are many and varied evidences that may be brought to bear out that contention, and that signs are not lacking which bespeak of degeneracy in some communities and classes and among some nations and races, but it is not in the natural course of evolution that mankind as a whole should degenerate—that course is ever onward and upward.

However, paradoxical as it may seem, as the people have attained a higher state of civilization, as scientific knowledge has increased, and as education has become more general, physical weakness and sickness have become more pronounced. True, we don't have the ravaging epidemics and plagues of years ago—sanitary improvements account for that. It is more individual weakness and sickness that are evidenced. This state of things is not difficult of explanation. Physical health is governed by natural laws, and in proportion to non-conformance to those laws is there deviation from health. Primitive man, like the wild animals, lived close to nature, and nature's laws governing the physical welfare were followed by instinct. As man has bcome highly civilized he has become also more artificial in his mode of living, and has gradually lost that instinct. Again, in the onward path of higher civilization men's thoughts have been directed to, and absorbed by, things outside of themselves, and less and less thought given to their own physical welfare. The consideration given by man to the improvement of live stock and plants has been highly successful whilst his own condition has deteriorated by neglect. Is it not reasonable to suppose that the same amount of study and attention that has been given to horticulture and stock-raising might have equally successful results if given to homo-culture. True, man is of a more complex nature than those of the vegetable and lower animal kingdoms, but yet his development and well-being are equally subservient to exact laws of nature. This lost instinct which safeguarded man's physical welfare must be replaced by intelligent knowledge and right action, and these are supplied in great part by physical culture. As physical culture becomes more universally practised there will be noticeable improvement in the physical powers of succeeding generations. To women are the great benefits to be strongly commended. It is mainly through the women of to-day, directly and indirectly, that the hope of better physical conditions in future generations is to be realized.

Whether taken for mental, ethical, or purely physical ends, the fact should not be lost sight of that physical culture creates nothing new. It simply causes a realization of powers, and calls into activity that which is repressed and held in abeyance, the active co-operation of which may influence and be made manifest in the aims and accomplishments of life.

I will now proceed to take up the subject in the first of the three aspects I have selected. As a counteractive agent its directions are quite diverse. What I consider of first importance in its field of action is its employment to counteract the effects of defective parentage, the inherited predispositions and weaknesses of children. Perhaps it is putting the chaise before the horse, rather would it be better to counteract the tendency among parents to faulty propagation of their species. It was Dr. Oliver Wendell Holmes, I think, who said that the physical training of children should begin a hundred years before their birth. However, we are dealing with existing conditions, and which are, that to-day little consideration or concern, if any, are given by the great majority of parents to the laws of heredity. As Dr. Wey, of the Elmira Reformatory, remarked, "So long as children are brought into the world under conditions involving less consideration than stock raisers exercise in improving the strain of their flocks and herds, there will be need of physical education and training to correct blemishes and imperfections arising from faulty parentage." It stands as a fact that a man who is in poor physical health is incapable of begetting strongly-constituted children. That he should do so does not coincide with what we are led to conclude from the study of nature's laws. Every child has a right to be born with a sound constitution. It is the best inheritance, and the wilful or ignorant ruination of such is far more regrettable than the wasting of an inherited fortune.

It is in the line then of counteracting inherited weaknesses and predispositions that to my mind physical culture at present has its most important field of action. If the weakness or predispositions be correctly detected at an early age (and reference to data of conditions of parents at the time of conception of the child will furnish some guide, though it is necessary to go further back for explanation in some cases), then the line of counteractive measures may intelligently devised and carried out persistently and systematically to completely overcome them. What knowledge of the faculties Phrenology gives us should certainly be brought to bear as a most valuable aid in this connection. Such courses may call for considerable attention and sometimes for prolonged periods, but it is surely worth the while. Parents in that way are afforded an opportunity to redeem themselves for a previous neglect of duty, through omission or commission, for it cannot be gainsaid, that it is the bounden duty of parents to bring only healthy children into the world. The children of parents with chronic functional ailments or organic diseases will be likely to have more or less pronounced weakness or affections of whatever organs concerned, besides a weakened general system. Specific blood diseases so-called, when transmitted are most erratic in their manifestations and correspondingly difficult to influence by special treatment. In those cases a rigorous course commenced at the earliest possible age and continued in some degree permanently is the most safe and sure way to overcome the far-reaching and insidious action of the taint.

To counteract any inherited nervous derangement as is evidenced in children of highly nervous temperament there is much that can be done to check and change abnormally inclined activities. Such conditions in children are all too common and are not even generally considered at all abnormal. Those children are usually very bright mentally, rather wiry of physique, and undersized, though generally healthy, but with no measures taken to offset the tendency of such conditions and temperaments, they grow up into nervous men and women who accomplish a great deal but collapse bodily and mentally at a comparatively early age, when they should be capable of their best efforts. Here it will be well to call attention to the extreme importance of detecting any signs of inherited predispositions to those intensely complicated abnormalities of the nervous system and mental faculties known as psychopathia-sexualis. In view of the increasing number of criminal acts being brought to public notice, and which are explainable from that cause, I think that the matter needs more serious attention on the part of physicians. In this paper I cannot go into detail of special treatment or course of training to meet various conditions, but only suggest or outline directions in which counteractive physical culture may be of great value.

The children of tuberculous parentage should have special attention paid to the development of lung power as well as to the encouragement of perfect nutrition. The children of parents who have chronic functional ailments need especial care of whatever organs are affected. Too often we hear the excuse offered for functional derangments that they were inherited. Such inherited weaknesses and predispositions are amongst the most susceptible of counteraction and the easiest to overcome, and on that account no excuse should be forthcoming or admissible. Signs of weaknesses of the digestive tract, the assimilative and eliminative organs, are early shown in children, and careful dieting and hygienic attention in various directions are indicated among the means to be adopted, together with any other means of promoting general development. Many children have no decided weakness in any one part or direction, but rather a general debility; and during childhood, are apt to contract or develop the common children's ailments, such as measles, scarlet fever, whooping cough, chicken-pox and the like, such ones are usually coddled and continually dosed with medicines and so-called tonics, and soon acquire the mental habit of thinking of themselves as weak and sickly, which in itself becomes a powerful ally to the other retarding influences. Instead, the child should be dieted carefully, but not finically, as is generally done, and should be encouraged to rough it in the open air, rather than to be kept clean, nice and warm, and should be subjected to judicious bathing and other hardening processes. The very ways that are used to protect the child from sickness really combine to weaken it still further, or certainly to prevent it from becoming stronger. Too much clothing, too much confinement indoors, coddling, injudicious feeding, dosing, parental solicitude and fears, all tend to bring about the very conditions which they are intended to obviate. Sometimes in young children of weak muscular systems there appears a tendency to flat chest, wry neck, stoop shoulders, or spinal curvature. Usually these appear in the school age before or about adolescence or puberty. The tendencies to these conditions may all be readily counteracted by systematic, properly-applied exercise. Again, to counteract the tendencies to faulty and uneven development that often accompanies very rapid growth, properly adapted exercise is most effective. Rapid growth is susceptible of regulation by exercise, and it is advisable that it should be so subjected.

So far I have confined the counteractive value of physical culture to the young. To adult life its chief value in that direction is in counteracting the effects of daily occupation. Professional work, skilled and unskilled labor, businesses of all kinds call for the special use of some faculty or bodily activity. No part of the body or any faculty can be overused except to the detriment of some other. Parts that are overused have a tendency to hypertrophy, and those that are little used tend to atrophy. Bodily health is dependent on a normal activity of all its parts and the maintenance of a harmonious relation between them. The brain-worker uses that organ excessively, whilst the muscular parts of the system are neglected. Whatever part of the body is actively employed there is an extra supply of blood to it. The brain-worker who does to excess is discomforted by headaches and other symptoms from a congestion of blood in the head. All those who use the brain excessively should counteract the effects by some muscular activity, thereby relieving the congestion in the head and re-establishing an even circulation of the blood. Then, again, the functional organs depend to a certain extent on bodily activity for their normal action. Persons who lead sedentary lives all suffer more or less from functional inactivities and derangements. The ill effects, then, of occupations which demand little or no bodily activity may be overcome or offset by a systematic course of exercise. Persons who are confined indoors, in more or less vitiated atmosphere, for many hours per day need much exercise each day in the open air, giving special attention to the lungs. Salesmen and saleswomen and others who are obliged to be on their feet many hours per day often suffer from varicose veins as a result of a weakening of the veins of the legs, from too frequent congestions. The counteractant for such cases is to perform special exercises periodically, for the upper part of the body and the arms. The workers at most trades are called upon to use special parts of the body and in such positions as to bring about uneven development or faulty carriage, which in some cases amount to deformities, but all such tendencies may be offset by specially adapted exercises. Even the farmer, whose occupation is usually considered to be one of the healthiest, is rarely a fine physical specimen, and as a class farmers are the best patrons of the patent medicine proprietors. In offering these counteractive measures I have mentioned only specially adapted exercises, but such additional aids as judicious bathing, personal hygiene, deep breathing, sleep, mental attitude, etc., should not be neglected. They, of course, will vary with individual needs.

I had almost omitted to point out one of the most important fields of action for physical culture as a counteractant. It is in connection with the great drink evil, as it is called. It would take more than I can set forth here to give it the consideration it deserves, and emphasize it as I would like to do. My contention is that the main cause of the resort to alcoholic stimulation is *lowered vitality*. Public sentiment, temperance advocation, and legislation will not decrease the evil, but as physical culture becomes more universally practised and decided efforts are made to keep up the vital powers to par, by right living, it will proportionately decrease.

With regard to physical culture as a preventive agent. Much that has been brought forward in its counteractive aspect is applicable to it here. What means used to counteract the effects of certain conditions will at the same time prevent other conditions of ill health which would otherwise result from them. In fact, the line cannot be very distinctly drawn between counteractive, preventive and remedial measures relating to physical health.

That "prevention is better than cure" seems to be most difficult of inculcation, and acceptation by the average person. It is argued that the physician should spend his energies in the direction of preventing sickness rather than in offering remedies. It is not the physician's fault entirely that he does not. When the people generally come to have a better knowledge of themselves and how to promote their physicial well-being they will better appreciate preventive measures. It is a matter of education. To-day the average person gives no thought to his health as long as he is not discomforted or inconvenienced, but so soon as he becomes sick he seeks remedial aid, and he usually wants the remedy in the shortest space of time, whether the means adopted are the best or not. Here we have the key to the popularity of advertised patent medicines and charlatanry. However, the time is not yet when people will demand preventive rather than remedial treatment, and demands are generally supplied. The increasing popularity of physical culture is a sign of the times in that direction. It is being taken up by many persons with a view to increase their vital forces and improve their physiques so as to overcome weakness and prevent sickness. So, it is more general physical culture than any special application of it that may be treated of as preventive. Whoever by its practice increases the vital forces increases the powers of resistance to disease. It does not assure an immunity to disease as some will claim for it, but it decreases the liability to it and enhances many fold the chances of a quick recovery from it. Many noted athletes have died of disease comparatively young. Athletics and physical culture are not the same thing, I am sorry to say, though they are frequently confounded.

The practician of physical culture who eats discriminately, bathes judiciously, lives under hygienic conditions, clothes appropriately, sleeps sufficiently, and is temperate in all things, must have an accompanying buoyant spirit and is little likely to contract even the all too common cold, under any conditions.

There are certain diseases which assert themselves periodically. Dipsomania may be taken as an example. As a preventive to a recurrence of an attack, physical culture is most valuable, but I may say, to be effective, it must be psycho-physical.

Coming to the application of physical culture as a remedial agent I am aware that I could spread out the subject indefinitely if I were to go into detail, and endeavor to show how it may have a therapeutic value in one or more of its forms in the treatment of many of the numerous ailments that flesh is heir to, and the materia medica has discovered and catalogued. I shall confine myself to a general view, with special application to classes of conditions.

Physical culture is by no means a cure-all, as some of its zealous advocates would have us believe. In its place, like many other therapeutic agents, it is very good, but it has its limits, and it is well that these limits be recognized.

As diet and hygiene do not belong exclusively to physical culture it may be said that acute diseases are not amenable to treatment by it. It is mainly within the scope of chronic ailments, and functional derangements, and general debility, that some form of physical culture may be adapted and applied with satisfactory results.

Accompanying normal health there must be a sufficient oxygenation of the blood in the lungs, and for which a certain amount of lung power is necessary; the blood must circulate freely; the skin kept properly active; and the muscles firm, and exercise alone will directly influence these. It is more by indirect action and by the combined effects of the various forms included in the course prescribed that the above-mentioned class of cases are affected.

Many ailments which if not arighted, become chronic, are those arising from faulty assimilation and lack of normal activity of the organs concerned in nutrition. The stomach, liver, and bowels are the organs in question, and their derangement is usually brought about by wrong habits of diet, or an unsuitable dietary, by neglect of hygienic laws, sedentary habits, and so on. Often a return to regular habits, a proper diet, with attention to personal hygiene, and the practice of some well-directed exercise, are sufficient to restore proper functioning.

There are more wrong conditions of health as a result, directly and indirectly, of imperfect elimination than is generally credited to that cause. Bodily inactivity, with superficial breathing, uncleanliness and inactivity of the skin (the skin may be clean yet inactive), too much eating, a sluggish circulation, and irregular habits, all or part combine to lessen excretory activity. Failure to completely eliminate the waste matter of the system by lungs, skin, kidneys, and bowels means a poisoned blood stream with all that that condition implies, and with which circumstance many other complications may be accounted for. Really there is but one disease—impure blood. By the practice of deep breathing exercises, proper bathing, and diet, some more or less vigorous systematic exercise and a return to regular habits and hygienic living, these avenues of elimination may be again opened up to fully perform the duties belonging to them. In chronic cases, however, which are of long standing, something more may be necessary to arouse to action the organs at fault.

Associated with imperfect assimilation, and failure of elimination are rheumatism, gout, some nervous ailments, general debility, neuralgia, anemia, etc., all of which then may be amenable to the remedial effects of physical culture.

That class of diseases arising from derangements of the nervous system, the manifestations of which are most diverse and complicated, are not so much amenable to treatment by physical culture, though in many, some forms of it may be of considerable value as an aid. It is in this class of cases that incompetent physical culturists are at fault in applying means that are not warranted by any sound reasoning, and in which considerable harm is done when persisted in. Exercise and cold bathing are excellent things when conditions are favorable, but otherwise, where the nervous system is involved, as is often the case. Exertion may be exercise, and it may not be—it may be merely exertion. All exertion requires nervous stimulation, and it depends on the amount of nervous energy at command whether exercise or cold bathing are indicated as beneficial. Physical culturists, like the Allopaths and others, need to consider reaction more. Many nervous cases under entirely physical culture treatment have shown anything but satisfactory results.

In restoring tone and proper action to muscular parts of the body which have been affected by nervous derangements, such as paralysis, locomotor ataxia, chorea, etc., exercise is of much value and effectiveness.

In correcting deformities and malformations arising from various causes, exercise again, specially devised, is most effective.

What is known as the Swedish movement cure, introduced and elaborated by P. Henry Ling, who died in 1839, is most effective in many instances.

To sum up, as a remedial agent physical culture is limited, and it is more as an aid to other forms of treatment that it is worthy of consideration and of more use and further development. It is as a preventive and counteractive means rather that it should be utilized more extensively.

I cannot let the opportunity go by to point out, that, in the line of preventive measures the pressing need is for a more rational education of youth and adults, one which supplies, systematic, appropriate, and timely instruction in the sex nature, the marital relation, parental influence, and the laws of heredity. It is to the general ignorance of these, and the little or no concern given to them, for seemingly inexplicable reasons, that the present undesirable physical conditions are mainly due. Race suicide is not a myth. Unfortunately of what has been published on the marital relation, much is erroneous, misleading and pernicious. The matter lies with the physician and educator of to-day.

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SCIATICA—HOW TO MEET ITS ACUTE ATTACK.

By Albert Langner,

New York.

After having overheated your body by a brisk walk or by sitting in a hot room, you may suddenly be confronted with a heavy snowfall or some other means of cooling off too rapidly. One of your legs gives way and there you are, sitting on the sidewalk or taking hold of a lamp-post. You cannot move. This is sciatica. It is usually preceded by lumbago. The cutting pain goes right through the whole leg from the hip down to the calf, heel or big toe.

By stretching the affected limb to the utmost and then trying to walk as straight as possible you will suffer excruciating pains, but you will get over the acute attack. If you have the means, send at once for the masseur, if not, wrap the leg up to the hip in a blanket and take a rest.

As soon as the discomfort reappears repeat the stretching of the whole leg in every way possible, *e. g.*, lifting the body on tiptoes, marching in a soldier-like way, stooping down upon your heels, or by chopping and sawing wood, etc. Repeat this procedure every four hours and you will need no other treatment; you will cure yourself in a few days without medicine and without massage.

⁂

The Trained Nurse.

For some time we have had a growing conviction that the Gazette, with all its good features, has lacked one item needed to round out and complete its range of topics discussed. It has had no column or cosy corner devoted especially to the interests of the modern nurse. True, we have always given more or less space to matters of direct interest to these "angels of the sick room" and indispensable auxiliaries of the busy physician, but we have not formally recognized this growing profession.

The trained nurse has to-day become not only a national but an international factor and fixture. The vocation is now everywhere acknowledged to be almost as dignified and quite as important as that of the physician. In fact, the physician himself, if he be up-to-date and progressive, and should be compelled to choose between the averagely careless apothecary and the careful, competent and conscientious nurse, he would be loath to spare the nurse, for he well knows that an incompetent nurse can easily thwart his most skillful endeavors.

There are more than forty thousand professional or trained nurses in this country, and the number is being annually and rapidly recruited, while there are ten times that number of the domestic and non-professional class. The demand for the latter is as old as the race, and that for the skilled variety will not abate until there is at least one trained nurse for every active practitioner in the country.

These tireless thousands have begun to make themselves felt in every community, and have established several periodicals through which to voice their experiences and foster mutual interests. Abroad they are even more fully organized than in this country.

It is hardly necessary, therefore, to assume an air of apology for this apparently tardy recognition of a calling, the practical as well as benevolent importance of which can hardly be overestimated. Some of the brightest young men and women—the latter greatly predominate—in the country are adopting the business of nursing the sick, as a life-work, and every year adds to the appreciation of the efforts of those who are devoting themselves to the training of this class of professionals.

Skill, accuracy and fidelity are quite as essential in nursing as in pharmacy. We realize this now more thoroughly than at any time in the history of the world. The success of the operating surgeon depends quite as much, in a majority of his most serious cases, on the careful and intelligent execution of his nursing instructions as upon the edge of his scalpel and the asepticism of his dressings. Without the constant and conscientious watchfulness and discretion of the trained nurse the ablest operator is handicapped and next to helpless. In short, he and his patient are wholly at the mercy of the nurse who takes charge of the latter after the surgeon has finished the operation and retired.

The diminished mortality rate from capital operations, and from those operations which but a short time ago were considered unpermissible because they were considered necessarily fatal, is very largely due to the advent of the trained nurse. It is this faithful functionary whose untiring vigilance, by day and by night, has doubled the surgeon's efficiency and divided his anxiety.

Nor is the nurse's auxiliary skill of less vital importance to the physician who treats cases of any of the graver forms of infectious disease. A little carelessness, or an apparently trivial indiscretion on the part of the nurse, at the critical moment, often determines the outcome, and substitutes the undertaker for the cook. This is especially true of typhoid, in severe cases of which the patient's life is absolutely in the hands of his nurse.

We have among our subscribers a goodly number of professional nurses, and the list is constantly increasing. This column or corner, which we hope may grow into a full-fledged department, is no more than a reasonable recognition of their interests and calling. We are confident that it can be made as interesting and helpful to this growing and indispensable class of humanitarian workers as is the medical journal to the active practitioner.

We will send sample copies of the GAZETTE to all nurses whose addresses may reach us, and cordially invite each recipient to constitute him or herself a committee of one to enlarge our field and further the objects above announced.

We invite brief contributions, of a practical and helpful nature, a free interchange of experiences and suggestions, and hope that all our readers will lend a hand to make this corner a success, by sending us new subscribers and the addresses of all the nurses with whom they have an acquaintance.

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THE word *nurse* is derived from the same root as *nourish,* and this signifies to sustain, ergo to feed. The slogan of the GAZETTE, as indicated by the first adjective in its name, has always been *diet.*

More patients die of dietetic indiscretions than of indiscreet doctors.

⚜ ⚜

IN all acute attacks there is more in proscribing food than in prescribing medicine. Adding food to an oppressed system is like adding fuel to a clogged fire. It increases the burden because it can not be digested.

⚜ ⚜

PATENT-MEDICINE TESTIMONIALS.

THE business of getting testimonials for patent-medicine manufacturers has become an industry in itself. A great deal of tact and diplomacy are often needed in it. It often happens that feminine wiles succeed when everything else fails. By a process of natural selection, therefore, the business has drifted largely into the hands of women.

A letter of commendation from a governor or a member of Congress is worth from $15 to $50. Members of State legislatures are quoted at from $10 to $15. Mayors and councilmen are steady at about $5.

There is also a small but steady demand for recommendations from pretty women, known to the trade as beauties, who will furnish striking pictures to go with the advertisement. Pictures of beauties must be in evening clothes and without hats.

It might be supposed that recommendations from ministers would be much sought for. On the contrary, they are almost unsalable, as a rule. The medicine men say that preachers have been overworked for advertising purposes. There is an exception, however, in the case of Methodist bishops. One manufacturer has been trying for some time past to get a testimonial from a bishop. Thus far, however, he has been unsuccessful.

Testimonials from prominent people are always purely voluntary. When a senator or a governor writes a letter in praise of Dr. Somebody's Panacea he does it simply as a personal favor to the man or the woman who has sought it. It takes tact rather than money to get the much-sought-for letter. With people of minor importance an offer of a dozen photographs is often made as an inducement for giving the testimonial.

A short time ago a medicine company decided on a campaign in a Western State. The testimonials of the governor and some congressmen were desired. Many efforts were made to secure them, but all failed. At last the head of the advertising bureau, a bright young woman, took the task personally in hand. The governor and the congressmen all happened to be in Washington at the time. She went on to the capital and planned a campaign that lasted a fortnight. It was successful. The officials could not resist her feminine tact. She got testimonials from all of them.—*The Sun.*

Book Reviews.

A System of Physiologic Therapeutics, A Practical Exposition of the Methods Other than Drug-giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by Solomon Solis Cohen, A.M., M.D. Illustrated. Philadelphia, P. Blakiston's Son & Co., 1903.

Volume V. of this great work, numerically out of order, since several volumes of the series which numerically should follow it have actually preceded it, is before us.

Intrinsically, the volume, thus delayed by nobody cares to ask what editorial or publishing exigency, is very much in order.

Its subjects include *Prophylaxis, Personal Hygiene, Civic Hygiene* and *Care of the Sick,* and consequently no volume of the series can be of more immediate interest to the progressive physician, and none can present matter equally fundamental in character for the enlightenment of the medical student of to-morrow. This is true because of that other admitted fact that the therapeutics of the future will unquestionably be founded on prophylaxis.

Part I. is devoted to *"The Origin and Prevention of Disease,"* and is by Drs. McFarland and Babcock.

Perhaps the authors couldn't do it, but, to be consistent with our reiterated dogma of condensation, we wish they had compressed the 321 pages they have so ably occupied into 200.

Part II. treats of *Civic Hygiene,* and is by Dr. Henry Leffman. This statement is equivalent to an assurance that the subject is handled by a master, and therefore in a masterly manner. As an example of the methodic thoroughness with which Prof. Leffman has approached his work, Chapter I. devoted to "The City," has for its topics *Site and Plan, Open Spaces, Roadways—Street-cleaning, Nuisances—Noises; Offensive Trades, Buildings—Public Offices; Tenements; Roof-gardens; Recreation Pavilions.*

Chapter II. devoted to "Municipal Health Organization," includes, *Sanitary Authorities, Hospitals—Hospitals for Contagious Diseases, Quarantine, Notification, Control of Venereal Diseases.*

Chapter III. treats of *Food-supply* and *Water-supply,* and is well illustrated.

Chapter IV. treats of *Disposal of Waste* and *Disposal of the Dead,* and is equally well illustrated.

Part III. is devoted to *Domestic and Personal Hygiene; Nursing and Care of the Sick Room,* and is by Dr. Abrams. It could hardly have been entrusted to abler hands.

Not all his readers will agree with Dr. Abrams in his estimate of the comparative values of the various materials worn as clothing. He seems to accept the well-established but recently much disputed traditions to the effect that wool "is a non-absorbent of odors," that "cotton is a much better heat conductor than wool, is very absorbent of odors, and quite non-absorbent of water, either in or between the fibers"; and that "linen is a good conductor of heat and a bad absorbent of moisture."

All these materials are conductors or non-conductors of heat chiefly according to the quantity of air contained in the interstices of the fabric.

But Dr. Abrams recognizes this point when he says, further on, that "loosely woven cotton or cellular cloth, or a mixture of cotton and wool or a loosely woven linen mesh may be worn."

No topic escapes careful consideration, Food, Work, Rest and Recreation, Stimulants and Narcotics, and the Special Hygiene of the Eyes, Ears, Nose, Teeth, Throat, Skin and Nails and the Hair—all receive attention.

Chapter IV. of this part is devoted to Hygiene of the Special Periods, and is an important chapter.

Chapters V. and VI. are devoted to Hygiene of the Diatheses and the Sick-room. Chapter VII. treats of Care of the Patient, Chapter VIII. of Special Nursing, and this is followed by a very comprehensive and satisfactory Index. We repeat that this volume is one of the most practical and important of the series.

DISEASES OF THE HEART AND ARTERIAL SYSTEM, DESIGNED TO BE A PRACTICAL PRESENTATION OF THE SUBJECT FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By Robert H. Babcock, A.M., M.D. Three colored plates and one hundred and thirty-nine illustrations. New York and London, D. Appleton and Company, 1903.

In the preface to his work Dr. Babcock modestly disclaims originality, declares his aim to be to present the subject in a simple, practical fashion adapted to the needs of the student and practitioner of medicine, for which he anticipates adverse criticism. He thanks those to whom he is indebted for material and assistance, mentioning a number of them by name not omitting that of his wife, which is strictly in good taste if rather unusual. The volume consists of 814 pages, divided into five sections and 34 chapters, to which is added an Appendix, which with the very full index occupies about 40 pages.

An Introductory of 36 pages forms a very useful prelude to the work proper.

It is much easier to point out defects in some other fellow's architectural plans than to build a passably decent structure of one's own designing; but beyond the general remark that many of the chapters might have been considerably condensed, we are not inclined to criticize the work before us.

Dr. Babcock evinces an unusual familiarity with his subject and his method of treating it is conscientious and conservative. Experts, that is, specialists in cardiology will find no decided novelties or startling theories in the book, but students and practitioners of general medicine will find it a very safe and satisfactory counsellor in the office and at the bedside.

The illustrations are of good quality and a decided aid to the text. The appendix treats of mechanical devices as aids in determining cardiac disease, including the X-ray, sphygmograph and Gaertner's Tonometer. The index is very full and satisfactory. The publishers have done their work well, an observation that is superfluous when mentioning the work of this house.

We have one question mark to note: Why does an American author or proofreader adopt the English orthographic nonsense of, "favour," "endeavour," etc.? Probably because this book is printed from English plates.

BACTERIA IN MILK AND ITS PRODUCTS, *Designed for the use of Students in Dairying and for all others Concerned in the Handling of Milk, Butter or Cheese.* By H. W. Conn, Ph.D., with 43 illustrations. Philadelphia, P. Blakiston's Son & Co., 1903.

Starting with the broad statement that "Successful dairying at the present time depends, to a large extent, upon skill in handling bacteria," the author proceeds in a very practical and lucid manner to set forth, in nine chapters, The Nature of Bacteria, Sources of Bacteria in Milk, Types of Milk Bacteria, Growth of Bacteria in Milk, Milk Bacteria and Health, How Shall the Consumer of Milk Products be Protected? Bacteria in Butter, Bacteria in Cheese, and Bacteriological Examination of Milk.

These topics cover the entire subject and cover it satisfactorily. Dairymen, as well as doctors, everywhere, should be familiar with the bacteria ordinarily encountered in milk.

Prof. Conn has done well in providing this handy and very practical volume.

The paper, printing and binding are all that could be desired, and the price $1.25.

REGIONAL MINOR SURGERY, *describing the Treatment of Those Conditions Daily Encountered by the General Practitioner.* By George Gray Van Schaick, M.D., Attending Surgeon to the French Hospital, New York. The *International Journal of Surgery Co.*

Barring some very careless proofreading, beginning with the abrupt break in the connection between pages 9 and 10, and after fig. 3, page 10, this is a decidedly valuable little handbook for the general practitioner who is presumed to be at all times ready to perform minor operations in surgery. It is concise and to the point, most of its teachings being characterized by aptness and perspicuity. Here and there we detect a careless or random statement or a questionable direction, as, for example, that small scalp wounds may be drawn together by selecting small tufts of hair on either side and tying them together across the wound. We have yet to find a patient who will "hold still" under that sort of treatment.

In a second edition all these minor blemishes will no doubt be eliminated.

It is a volume that every practitioner in the country should always have within easy reach.

THE *Era Magazine,* published by Henry T. Coates & Co., of Philadelphia, comes to us every month loaded with good things.

From the April number we appropriate the following:

COMPLETED PROVERBS.

"Better be than seem." Not always; better seem a fool than be one.

"There is as good fish in the sea as ever came out," but a red herring on the plate is worth more than a school in the ocean.

"He that wants hope is the poorest man alive," while he that has hope is rich—in imagination.

"Punctuality is the soul of business," in the underpaid employee.

"He who saves in little things can be liberal in great ones," but he doesn't save with that object in view.

"Love understands and therefore waits," the lover does not understand, and therefore waits.

"Whatever man has done man can do" better.

"A good worker should have good wages," and a good idea should be put into operation.

"A good horse cannot be of a bad color," but a good cause may be in bad odor.

"The greatest wealth is contentment with a little," but one must have that little.

"Thrift is better than an annuity," but not so much sought after.

"Grief divided is made lighter," but not so much lighter as to be worth the trouble of finding some one with whom to divide it.

"Life is too short" for a fool to learn anything.

* *

A NOTABLE DOCTOR'S BILL.

A YOUNG doctor in Philadelphia has given a notable example of the proper estimation of a physician's services by charging a well known Pennsylvania politician $190,000 for twenty-one months' services. This is calculated at the rate of $20 per hour for office service, and $40 per hour for outside work. The bill also includes $17,000 for several night trips to Harrisburg, and $20,000 for attendance at Virginia Hot Springs. It is to be hoped that Dr. Browning, who has rendered the bill, will be able to prove that the patient was fully aware of the rate to be charged, and that he will be successful in collecting his account. He will then be notable for having done better than Dr. Agnew, who only received $20,000 for his attendance on Garfield, or Dr. Keen, who rendered $7500 for two out-of-town trips, or Dr. Howard Kelly, who once rendered $5000 for a visit to Philadelphia.

* *

A HANDY PANACEA.

"I WISH you would do something for my husband," said the anxious wife; "he seems to be worrying about money."

"Don't be alarmed, madam," returned the doctor, reassuringly; "I'll relieve him of that."—*Philadelphia Record.*

* *

Notes and Queries.

Query 142.—What is the latest and best work on Preventive Medicine? C. M. S., Tenn.

Answer.—The volume just issued by the firm of P. Blakiston's Son, of Philadelphia, being Vol. V. of the series of "A System of Physiologic Therapeutics," is the latest. See a review of the same in this number of the GAZETTE.

There is another very recent work, by English authors, published by the Funk & Wagnalls Co., of this city. We have not seen this latter volume, but it seems to be well received.

Query 143.—Is it finally conceded that malarial infection can be acquired in no other way than by the bites of certain breeds of mosquitoes? If so, why do we talk of "paludal influences," and why retain the misnomer "malaria?"

I have remarked your own protest against this word at various times, and if the new theory is correct there is all the more need of abolishing it.
T. M. A., Ala.

Answer.—It is not yet universally admitted that mosquitoes are the only source of transmission of the parasite which causes intermittent fever.

Careful observers insist that the water of paludal regions is capable of producing the disease. Further investigation is necessary to clear up this point, and it may finally be proved that there are several other sources of infection.

However this may be, we repeat our former protest that there is no logical or philological reason for the semi-authoritative use of the word "malaria." Mosquitoes may thrive well where there is "malaria," but no one claims that bad air generates the plasmodium.

Query 144.—Is it safe to syringe the ear? The medical journals are full of contradictory directions as to the care of this necessary organ.
L. T. McG., Ont.

Answer.—The ear is a delicate organ and requires delicate care; but this care should be largely negative. Many people damage the organ of hearing by giving it too much attention. It should in a general sense be severely let alone. Keep syringe nozzles, aurilaves, ear scoops, hairpins and other pins out of it. Cleanse it when needed with a damp cloth without using soap. Don't inflict "sweet oil and laudanum" on the helpless baby for earache. A hot cloth behind the ear or over it is safer and even more effective. Don't fill it with the "hearts of onions," or any kind of "earache drops." They are all villainous.

If there are accumulations of earwax have them removed by competent hands—a specialist, or at least a physician. Cotton plugs are objectionable unless when diving, swimming, or for some special therapeutic purpose.

Even the nasal douche is sometimes too vigorously used, and harms the ear through the forcing of foreign matter into the eustachian tubes. Blowing the nose too severely sometimes causes similar damage.

Blows on the ear should be prevented, and the ear should never be pulled. A sharp blow or even a sudden loud noise directed into the ear by a tube or funnel sometimes results in rupturing the drum membrane. Let the ear alone!

Query 145.—Is the discovery of the microbe of hydrophobia by Sarmagni accepted by scientists and medical men as a fact?

And is there anything in the theory that the extensive upheaval of the city soil, in the subway and other excavations, has been the cause of the marked increase in this terrible disease during the past year? W. T. N., New York.

Answer.—Scientists and the medical profession have not yet expressed an opinion of the claim of the Italian published in a Sunday paper some weeks ago. Staid and conservative medical men do not commit themselves on a topic of such importance without awaiting ample corroboration, which necessarily takes time and laborious experiment on the part of many observers. All these newspaper announcements must be taken with many grains of allowance. Most of them are never heard from a second time.

The throwing up of so much subsoil that has been absorbing the sins of civilization for a couple of centuries no doubt has much to do with some forms of disease; but it is rather far-fetched and quite novel to associate the increased prevalence of hydrophobia with this general upheaval. Earth emanations constitute, in this case, genuine malaria, by which we do not mean chills and fever. And malaria depresses the vital stamina of every one exposed to it. This depression unquestionably increases the susceptibility of both animals and men to all sorts of infections and contagions. In this indirect way there may be some connection between the earth excavations and the increased prevalence of hydrophobia.

It is well to remember that city-bred dogs, and especially the thousands of pampered household pets, are nearly or quite all diseased animals, and they are not only more subject to attacks of rabies, they are also prolific sources and transmitters of other diseases. There will be no millennium until lapdogs have gone out of fashion!

THE
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THE DRINKS OF THE SEMI-CIVILIZED.

By Lawrence Irwell, M.A., B.C.L.

Man has apparently never been altogether satisfied with the simple beverage that Nature has provided to quench his thirst. Throughout the history of the world there seems to have existed a certain dissatisfaction with cold water as a drink, and a tendency to obtain, if possible, a richer substitute. It is true that nothing actually quenches thirst better than cold water, but it is also true that in thirst, as in all his appetites, the simple appeasing of the desire is insufficient for man. He demands—and has always demanded—gratification, that is, pleasure in the appeasing as well as mere satisfaction. Hence the infinite variety of alcoholic drinks at present in existence. Some men hardly know the taste of water, and seldom let a drop pass their lips if other beverages are obtainable. They seem to take the same view as the Mongolians who assert that "plain water has a malignant influence, and ought on no account to be drunk." With the modern beverages of civilization—tea, coffee, cocoa, aerated or charged waters, wines, spirits, and malt liquors, everybody is familiar, at least in name, but the question arises, what do men drink who are unable to get these beverages; what substitutes have they for water pure and simple? A look into the more unfrequented byways of the earth reveals many curious and interesting drinks, some of which are worthy of description.

The Hindus make a highly esteemed drink from the milky fluid contained in the climbing bindweed (convolvulus). Their method is to carefully squeeze out the latex of the plant, and then induce a process of fermentation by allowing it to stand. This beverage is claimed as the original intoxicant of the human race, and the predecessor of the vine, so great an ancestry has it. Under the name of Soma, hymns to its praise occupy a large part of the sacred writings of the Brahmins, and there exalt it into a mighty god who can give new strength and vigor to his devotees, a claim resting on the exhilarating effect it produces on mankind. It is still regarded as sacred, and at a great annual festival, libations are poured out to Soma, whose boundless powers are believed to extend even to the granting of immortality. The ancient Persians also revered it as Haoma.

In some parts of the world we find the sap of trees pressed into requisition as a satisfier of thirst. Pulque, the favorite drink of the Mexicans, is the sap of the maguey (agave). When the plant is on the point of flowering, and all its best energy is directed to flower production, the Mexican cuts and hollows out the flower-stalk, so that the sweet sap, on its way to feed the bud, is arrested and caught in the hollow. By standing it ferments slightly, and thus is formed an agreeable beverage. A somewhat different drink, known as tepache, is made by mixing sugar and water with the maguey sap, and allowing the mixture to ferment for a few hours. Those natives of Mexico whose tastes demand something stronger and more pungent, allow fermentation of the sap to go on for a longer time until it becomes acid and almost putrid. A much milder drink, largely consumed in Mexico, is orange-leaf tea, made by pouring hot water on orange leaves.

The cider tree of Tasmania (Eucalyptus-gunni) derives its name from furnishing the bushmen with a drink similar to pulque. In the spring, as the sap rises, the trunk is tapped by incisions in its bark, and a cool refreshing liquor flows out of the wounds, which can either be drunk in a natural state, or, as is more usual, be set on one side to ferment into a pleasant beverage.

The sap of trees flowing in a steady current from roots and flowers, and bearing with it the nourishment which the plant has elaborated for its own consumption, has been recognized all the world over as a valuable drink, although the trees or plants supplying the delicacy vary in different climates. For example, in Kamchatka, where neither eucalyptus nor maguey could live, the natives have called into requisition the hardy birch. Its sap, which is procured, as in eucalyptus, by boring holes in the trunk, is converted with the addition of hops and sugar, into beer, or, by a little different process, into wine. We read that birch wine has an agreeable flavor and is very wholesome; the kind made in Russia effervesces like champagne. It is recorded that during the siege of the German city of Hamburg by the Russians in 1814, almost all the birch trees in the neighborhood were destroyed by the Bashkies and other semi-barbarians in the Russian service by being tapped for their sap.

In some of the South American countries, a drink is prepared from the pulp of the mucilaginous astringent fruit of the quazuma, a near relative of the cocoa tree. This pulp undergoes various processes of fermentation, and so furnishes a kind of beer. Chica is maize beer made by some of the Indians of the Andes.

Chi-chi is a name given by the Patagonian natives to a sort of cider which they brew in the autumn, when the wild apples are ripe. Their method of making it is simple in the extreme. Pits are dug in the earth and are carefully lined with the hides of horses to prevent any juice soaking into the earth. Then the apples are gathered and thrown into the pits. They decay and ferment, and their juice provides the material for the grand annual bout of the Patagonian men. The women have learned by experience what the results of this bout too frequently are, so when it commences they go round carefully collecting knives and other dangerous weapons from the men. With these and with their children they then steal away and hide in the woods until their lords and masters shall have drunk themselves crazy and have slept themselves sober again. It is a somewhat sad reflection that these wild apples are the only legacy left by a few devoted Jesuits, who set out to convert the Patagonian savages. The Jesuits took with them various implements of husbandry, and European grains and seeds for cultivation; but they were all soon murdered, and only the apple-trees flourished and propagated, producing excellent fruit in a climate more congenial to plant-life than to missionaries.

Dowra, or doro, is a primitive beer, brewed in many parts of Africa—in Abyssinia, in Mashonaland, and among the Kaffirs. The method of brewing is much the same in all countries. Grain is soaked in water, and left until it sprouts; then it is spread in the sun to dry and is mixed with unsprouted grains; then the women pound it in wooden mortars, and the malt obtained from this is boiled and left to stand in a jar two days, and overnight a little malt that has been kept for the purpose is thrown over the liquid to excite fermentation. In Mashonaland the women are the chief brewers; in fact to be a good wife one must also be a good brewer. The beer is always made in the fields and is decidedly intoxicating. It must be drunk as soon as it is brewed, otherwise it quickly becomes disagreeable and worthless. A similar "barley beer" was used by the old Egyptians both as a beverage and in libations to their gods. Xenophon speaks of "bowls of barley beer in which the grains were floating." Of quite a different class of beverages is that known as kephir, drunk by the people of the Caucasus. This is effervescing milk, the effervescence being caused by the introduction into the milk of horny yellowish brown masses known as "kephir-grains." When these grains are moistened they swell up into lumps of a gelatinous consistency. The nature of these grains has been scientifically studied, and they have been found to consist of rod-like bacteria with a yeast, the two living together on terms of mutual advantage. On their introduction into the milk, fermentive changes are immediately set up, and the milk is transformed into its constituent parts. Lactic acid is produced, together with a little alcohol, and a large quantity of carbon dioxid, the presence of the last named being, of course, the cause of the effervescence.

Koumiss is a similar beverage of effervescing milk. On the Asiatic steppes, the milk usually employed is that of the mares, although the milk of goats and asses is often used. To Europeans, as well as to Americans, koumiss made from the milk of mares or goats has a very unpleasant smell, but when made with cow's milk it is more palatable. This drink is credited with valuable nutritive properties in many wasting diseases. Twenty-five years ago, it was claimed that it would some day occupy a position so important as to place cod-liver oil and beef-extract in secondary positions. That time does not yet appear to have arrived.

Lovers of the fragrant cup of tea would scarcely recognize their favorite beverage were they invited to partake of it with their brethren of Tibet, who are no less devoted to tea, made in their own particular fashion. Brick-tea, made at best of the offscouring and dust of tea-leaves, and stems of the tea-plants (although often of any worthless plant-dust), is used by them, instead of the crisp, curly tea-leaves which we employ. It derives its name from the dust being pressed into hard, solid, brick-shaped lumps, from which pieces are chipped when tea is to be made. The infusion made from brick-tea is harsh, very strong and stimulating, and instead of being served with milk and sugar, it is usually flavored with mutton fat and salt. However nauseous the resultant liquid may seem to us, the Tartars drink large quantities with great relish; and after finishing their cups of tea, they end by eating up the residue of tea-dust as something very dainty. Substitutes for tea have been found at different times by settlers in out of the way places. In Tasmania, the leaves of certain myrtles have been used to make "tea" and from this fact have received the name of "tea trees." The Tasmanian "tea tree" is usually a shrub. The leaves are too aromatic to produce a really satisfactory infusion. The "tea tree" of the Falkland Islands has less aromatic leaves, which therefore make a more palatable beverage. The leaves of another variety have been used by sailors quite frequently. When made too strong, they are said to have an emetic tendency, as has what we call "green" tea. The leaves of the above-named myrtles, if added to spruce leaves in equal quantity, modify the astringency of the beer brewed from the spruce leaves, and much improve its flavor, at least it is so reported by those who have tried it in Tasmania.

The nations of the Orient, generally, either follow the usage of the Turks, who drink their coffee thick with sediment, or the nomadic Arabs, who make it from dried pulp, in much the same manner as tea is prepared in Occidental countries. The Somali tribes of East Africa boil the coffee "berries" (in reality the seeds) in oil, and soak maize in the mixture.

Kava, or ava, is a Polynesian intoxicating drink made by macerating in water part of the root and stem of one of the piperaceæ family, so plentiful in Australasia. Formerly it was prepared by women, who carefully chewed the plant.

Saké is the national beverage of Japan, and until recent years was the only fermented liquor known in that empire. It was obtained by the distillation of the best kinds of rice. In appearance it resembles a very pale sherry, but in taste it is somewhat acid. The best saké is white. There are, however, many varieties, and the poorer people in Japan have to content themselves with a turbid sort. A glass of saké is drunk at every function and ceremony. Even all offerings to the gods at religious festivals, whether great or small, include a cup of saké.

For most if not all of the drinks named in this brief summary, a taste would have to be acquired with considerable diligence before they could be drunk with any real satisfaction by the more civilized portions of the earth's inhabitants.

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NUTRITION AND STIMULATION.*

By I. N. Love, M.D.,

New York City.

"There has been a wave of enthusiasm affecting the profession for the past three decades, which has been growing stronger each year, and is now truly at its flood, and this wave has concerned itself chiefly with what has been termed scientific research. We are all now ready to announce our belief that the laboratory side of medical science must be cultivated as a foundation for the whole superstructure of more or less empirical clinical facts, and we have given evidence by the establishment of numerous institutions for study along these lines, and more will follow. More systematic and accurate methods are being applied throughout the entire field of medical practice than ever before, and every worker, whether wielding the microscope, manipulating cultures or making clinical observations and studying bedside symptoms, realizes the importance of thoroughness and the application of careful scientific methods.

In passing it may be well to suggest that the term "scientific" has been used in too narrow a sense by many members of our guild. A recent writer, very tersely says: "The use of the word 'scientific' in a narrow sense as applied to laboratory work, has done much to arouse prejudice and establish false standards. By degrees there has grown up a distinction, which is now heard on every hand, between what is termed 'scientific medicine' and 'practical medicine' naturally with the implication that practical medicine as personified in the practitioner is not scientific. In other words 'scientific' as popularly used in medical writing and discourse, demands a laboratory and the accessories which a laboratory implies, whereas the man who is examining his patients from day to day in most painstaking and accurate fashion is looked upon as a faithful and conscientious practitioner, but not as a scientific investigator. So deeply has the laboratory impressed itself upon the uncritical thought of the time, that he who often aimlessly looks through a microscope, or with narrow vision describes a lesion, is placed upon a pedestal as a man of 'scientific' tendencies, while his colleague who faithfully describes a symptom is denied any such distinction."

"The reason for this anomalous state of affairs is certainly not far to seek. It lies in the fact that accuracy and hence knowledge have, in great measure, come by way of the laboratory. The insistence on the necessity of exact observation and description has certainly not had its origin with any one set of investigators in the general field of medicine. The laboratory worker deals with problems of the most complex sort, and on the other hand with facts which may be easily and accurately described. His claim to distinction as a scientific man does not, however, lie in his description of isolated facts, but wholly upon his attitude toward the problems, the solution of which depends upon the proper interpretation of those facts. Certainly nothing is simpler than to go into a laboratory and to describe at any length what one sees under a microscope. This is, however, not science, however often the results may masquerade as such, nor does the mere accomplishment of such work constitute a scientific man. But to go into a laboratory, to study facts laboriously, and then to appreciate clearly the meaning of those facts for the sum total of knowledge and to make generalizations therefrom is, properly speaking, 'scientific.' "

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* Address in Medicine to the Mississippi Valley Medical Association, Ashville. Reprint from *J. Am. Med. Assn.*

Note.—As many of our readers are no doubt aware, the talented author of this paper and editor of *Love's Medical Mirror* died suddenly on board the ocean liner Aurania, while in the act of felicitously responding to an address. We reproduce it as one of his latest appeals to the medical profession.—Ed. Gazette.

Continuance of life, commencing with the original protoplasm, the cell, depends upon proper nourishment and a proper recognition of this fact, and attention to the means of securing this result is the duty of the physician. In other words the physician should be interested in the child, from, and even before, its conception.

May we not hope that the time will soon come when the physician will be the family counselor, and not alone be called to see individual members of the family when sick, but consulted prior to any important domestic movement, especially in advance of all matrimonial plans.

A reckless disregard of the physical equipment of either one or both parties in a matrimonial partnership can only result sorrowfully: "A child born weakly—of weakly parents, maybe—perhaps weds precociously a weakly wife or husband, 'produces weakly children, and they weaklier children,' of whom it may be emphatically said, 'better they had not been born,' 'for life is not to live, but to be well.' Without being actually ill, however, they are ever ailing, never healthy, never strong, sturdy, and active, as are many others; appetite is capricious, seldom good; food not taken with relish, hunger a sensation unknown to them; the poor, puny, pining things may be said to vegetate from day to day, instead of thrive and enjoy life; the pleasures of childhood are not theirs. 'A hale cobbler is a better man than an ailing king,' tersely and truly wrote somebody, 'for life consisteth not in the abundance that a man possesseth,' and compared with a good constitution, all the wealth of the world is nothing; yet how marvelously little do some, in their thirst for riches or position, 'appear to think this when sanctioning or encouraging ill-assorted or non-assorted marriages, regardless of physical and mental fitness, and that common sense should tell them can only result in disaster.' Were parents careful as to the companionships their children form, instead of anxious for them to ally with those of every wealthy *roue,* who bear about them the too manifest constitutional deterioration it is desirable to avoid, we should be less often shocked by the pitiable objects we sometimes encounter."

If the physician could have a voice in the decision of these matrimonial schemes it would be well, but whether he has or not, he surely should be constantly on duty after marriage as the adviser and helper in the securement of a healthful and well-endowed heir.

We should insist, except in rare instances, that married life is a failure unless a child be born within a year, and we should encourage the thought that barrenness is acknowledgment of physical or moral delinquency, and in nearly every case is a reflection on the party of the second part as well as the party of the first.

Let us insist, that the future man will be a more complete and perfect specimen if we as physicians can be permitted to feed him or direct his feeding from the moment that he is conceived and starts on his life's career. Every mother or prospective mother should be taught that she is, from the time she reaches puberty, built and equipped for two, for herself and the child that from the beginning it was intended that she should bear and rear. And so, when bearing her child, the mother should be taught every detail of personal hygiene, proper feeding and elimination not only for her own sake, but for the health, life and perfection of the coming child.

The chief definite knowledge of proper infant feeding on the part of the medical profession has been the development of the past twenty years. There was no real check on the "slaughter of the innocents," the fearful, the awful infant mortality that obtained the world over until the problem of infant feeding was properly solved, and the first step in its solution was the appreciation of the fact that the substitute food for the babe must be sterilized, and the second was to know that sterilization means cleanliness rather than the destroying of microorganisms in the food at the expense of killing the vital elements therein by cooking them to death; the third step was the recognition of the fact that infantile intestinal disturbances were almost uniformly caused by improper food and relief depended on the correction of the food-supply and the accomplishment of proper intestinal drainage—the removal from the bowels of the irritative materials. The pioneer work of Pasteur, Tyndall, Lister, and others was quite as important from a medical and dietetic standpoint as from the surgical one.

It is needless for me to draw attention to the essential elements of proper food. We are all familiar with the three general groups of elements or necessary food, which may be subdivided into: 1, the mineral—water, salt, ashes of plants and animals; 2, the carbonaceous or respiratory—heat-giving, starch, sugar, fat, etc.; 3, the nitrogenous—flesh-forming, tissue-building, such as albumin, fibrin, casein, etc. It stands to reason that throughout life the mineral and respiratory foods are necessary in full amount, but that when the individual has gained full maturity, complete growth, say after the age of 30, the nitrogenous or tissue-building foods are demanded in smaller quantity, and after 40, the middle mile-post of life, has been reached, less than one-half or even one-third as much animal food is required as during the period of development. This is not sufficiently appreciated, and the continued use of large quantities of nitrogenous food after maturity accounts for numerous diseases.

The investigations and views of Haig, Garrod and others are being daily confirmed by careful observers as to the close relation existing between the excessive use of animal food and gouty as well as organic diseases in general. Close study of numerous victims of the gouty diathesis, hereditary and acquired, has convinced most observers that the proper solution of the problems involved lies along the lines of judicious diet, which involves especially the reduction of animal food consumption and a more liberal use of fruits and vegetables. When we realize how close the relation is between gouty conditions, atheromatous degeneration, tuberculosis, cancer, general organic disease, premature age, and animal food in general, we will surely study the question most assiduously.

The liberal eating of fruit is a most excellent habit to form; it not only opposes constipation and favors the freest elimination in a general way, but the mineral salts contained in the fruit largely affect favorably the elimination of uric acid. The free eating of cherries, strawberries and grapes is an excellent fruit cure, and Weiss, acting on the recommendation of Woehler and Linnaeus, has recently made experiments which determine that quinic acid is probably the active ingredient present which acts as a curative agent in gouty states. A decoction of the root and leaves of the strawberry plant has long been a favorable domestic remedy in gout in some parts of Russia.

As a proper selection of the full varieties of food, and their complete digestion and proper assimilation, together with perfect elimination—in brief, a perfect scheme of metabolism—are essential to growth, so they are demanded after full growth is accomplished, in maintaining a healthful condition of the animal mechanism; but, as previously stated, the essentials for keeping up the equilibrium of metabolism in the latter period are different.

The balancing of the bodily income and expenditures is the essence of health. The real effect of food is to repair waste, administer to the growth of the bodily organs, maintain the balance of nutritive and temperature equilibrium under the varying conditions and circumstances to which the individual may be exposed, to maintain all the animal functions in complete activity and prevent loss of weight.

It is well that we exercise our intelligence in the selection of foods essential to health, to the proper running of our mechanisms, and remember that we eat to live and must not simply live to eat. In other words, after maturity there is grave danger to us in the cultivation of epicurean tastes, the love of the tickling of our palates.

It is not always safe to trust merely to the sensations of hunger, surely not to capricious choice or fanciful desires. We cannot too strongly emphasize the thought that high livers are short livers. It is the part of wisdom for us all, then, to realize that as we approach maturity we must be satisfied to eat less and eliminate more, and that the greatest helper in the flushing of the eliminating organs is large quantities of pure water. Bodily exercise is absolutely essential to healthful activity of the eliminating organs, and unless we wish to be full, dull, heavy, luggy, and lazy as well as fair and fat at forty, we must keep moving and echo loudly the words of wisdom, "Blessed be drudgery." As an exercise walking will ever continue to be healthful and good. We as physicians fail in our duty when we do not announce in strongest terms not only the advantage from the standpoint of happiness, but also of longevity, of plain living and high thinking.

As we have studied food problems, we have had crowded on us more and more every day the necessity of state legislation in the matter of pure food laws. Correspondence with many thousand physicians during the past year elicited almost uniformly the view that legislation which will favor purity of food laws can not be too strict. Members of the medical profession of Missouri, almost to a man, have endorsed the legislation which precludes the sale of baking powders containing alum, an astringent which is certainly not favorable to good digestion, and other more comprehensive laws should follow. An investigation of the whole field of food adulteration presents facts which are almost appalling.

Some writers have placed under the head of medical or auxiliary foods those things which go to make up stimulants, neurotics and narcotics, such as alcohol, tea, coffee, tobacco, etc., but the expression, "auxiliary food," is of doubtful propriety. The term should surely be applied only to those things which are necessary to life.

ALCOHOL.

Among the so-called auxiliary foods alcohol is the only one which is open for discussion. Accepting as we may the views of Dujardin-Beaumetz, Thompson, Pavy, Burney, Yeo, Atwater and others in favor of the fact that when alcohol is ingested in the system in moderate quantities a part is utilized and only a part eliminated and it is therefore a food, it does not follow that it is essential to life. Many things may be oxidized and used in the body, and be a food to that degree, yet not be a desirable one. The evidence is constantly accumulating that, as a food, alcohol is of doubtful utility, and the list of valuable foods that are in no way involved in doubt, and certainly not harmful and dangerous to the body, mind and soul is so great that alcohol as a food may well be left out of our nutritive philosophy and be permitted to take its place as a stimulant pure and simple. As a matter of fact, the dangers that are associated with alcohol are so great that it should only be classed under the head of medicines and luxuries. As a luxury, it certainly adds to the sum of human conviviality, cheerfulness and happiness when used in very moderate quantities, but then only with the meal. If used liberally it takes its place along with opium and Indian hemp, primarily as an exhilarant and secondarily a depressant and narcotic. A very limited amount of alcohol with the meal now and then does, to advantage, stimulate appetite and improve digestion, and by its psychic effect, making the user enjoy his food and environment, it may be helpful. The limited amount of good that it may do, in this way, in a few rare cases, is offset a thousand, yes, a million, fold by the awful dangers which accompany its use. The writer has for years had liberal views on this question, and while he believes that the proper solution of the temperance question lies in teaching every child from the beginning until matured to be the ruler of its own spirit, to cultivate self-denial, self-control, self-respect, yet more and more as time passes he believes that absolute avoidance of alcohol in all its forms as a beverage, as a luxury, is the safest course for all, and that while now and then a strong, self-reliant, rigid back-boned individual may with impunity take his occasional drink or liberal indulgence, the endorsement given to the drinking of alcohol by his act and the injury to his brother, whose keeper he surely is, however much he might wish to avoid his responsibility, is an unanswerable argument against him.

Alcohol has been more abused, more excessively and needlessly used, more misapplied, than any other one remedy. The London *Lancet* recently quoted from the *New York Medical Journal* for Aug. 19, 1900, a case reported by Dr. M. A. Walker, of a boy of six years, who, before breakfast, about 8:30, drank three ounces of whisky. The parents knew nothing of this, until about 9:30, when the boy, while sitting at the breakfast table, dropped a plate and then fell from his chair. Cheyne-Stokes respiration began about 2:45 a.m., and death from cardiac failure occurred at 5 a.m. No means of stimulation seemed to have the slightest effect on the heart.

Duty demands that physicians utter a note of warning against the use of alcohol in any form by women. Drinking on their part, whatever it may be abroad, is on the increase in America, particularly among the wealthy, the leisure class. The modern woman is not as busy in a domestic way as she once was. In many of the leading cities of America the free drinking of wine by very respectable women in public places is too common, and some of them now liberally indulge in the luxury of the cocktail and highball, and overwhelming evidence can be presented that the soda fountain is a popular rendezvous for fashionable female tipplers in some of our leading cities. This is an awful thing. It is bad enough for men to drink, but for women it is physical, mental and moral suicide. Their emotional make-up is such as to render the drinking of alcohol in any form deadly dangerous. At this point it can not be too strongly stated that a physician should only in the direst extremity administer alcohol to a woman; to a nursing mother, never. Too often beer, or some sloppy substitute masquerading in its place, is given to the nursing mother to increase her flow of milk. It should never be done.

TEA, COFFEE, ETC.

Coffee, tea, cocoa and chocolate are all popular aromatic beverages which, while differing considerably from one another in their common physical characteristics, all agree in containing alkaloids closely resembling each other. Coffee and tea contain the active principles caffein and thein, practically identical, and the others contain an alkaloid of theobromin, which is very like them. Coffee is the more powerful and, on account of having much less tannin than tea, is not so constipating. Tea, being less potent, is a safer beverage if used liberally. Chocolate, as prepared from the cocoa of commerce, is very weak in the alkaloid theobromin; being very rich in cocoa-butter, made with milk as it usually is, it makes a most nutritious drink.

Tea and coffee, being stimulants, should not be given to children, on the principle that thoroughbred, spirited colts need no whip, but oats instead. Unquestionably the milder stimulants given to children during the growing period favor the appetite for stronger ones later. [This applies to adults only in a lesser degree.—Ed. Gazette.]

TOBACCO.

Tobacco is a luxury, which may very properly be classed, save in its dangerous features, with coffee and tea, but, like them both, it increases the power of resistance of the individual to fatigue and enables him to meet great tests of endurance and indulgence in prolonged abstinence from food.

Tobacco differs from alcohol in every essential; the latter, whether we accept the idea that it is a food or not a food, can only be pronounced poisonous or dangerous so far as the individual dose is concerned when given in very large quantity, whereas tobacco in itself contains—no matter how small a portion—an active poison, a narcotic, which readily affects the brain. The secondary effects of all stimulants like alcohol and sedatives like tea and coffee are narcotic, but some, like tobacco, opium, henbane, etc., seem to immediately attack the centers of the brain.

The tobacco plant belongs to the genus Nicotiana, a name given to it in honor of Jean Nicot, a French ambassador at the court of Portugal, who first introduced this plant into France. Belonging to this genus are several species which yield at the present day the tobacco of commerce. These plants belong to the natural order Solanaceæ, a family which yields us not only tobacco, but stramonium (Jamestown weed), belladonna (or deadly nightshade), henbane, cayenne pepper, tomatoes, ground cherries, potatoes and mandrakes.

A well-known writer has observed: "At first sight this looks like an incongruous family, but still there are certain common properties running through the whole order. All contain, more or less, substances that act on the nervous system, and thus increase from the mild poisons of the solanums till we arrive at the deadly principles of the atropas, the henbanes and the tobaccos.

Tobacco is used in three different ways, either chewed, smoked or in the form of snuff through the nasal passages. It would be interesting to discuss the details of the manufacture of tobacco, its proper treatment before being ready for chewing, smoking or snuffing, but in each case the effect is the same and the result depends on the absorption of the active principle, nicotin, and whether one snuffs, chews or smokes, unless he be possessed of a strong will power, he becomes more and more a slave to a narcotic but a step removed from those which are more alluring, such as opium, morphin and cocain.

In chewing tobacco about the only constituents which can exercise much influence on the system are the nicotin and volatile oil. The soluble salts would act the same as the saline constituents of the other plants and they explain why tobacco is such an exhausting crop for the soil. Among the salts of tobacco the nitrates are the most abundant, and this explains the ready way in which tobacco burns in the process of smoking. In snuffing, the soluble parts of the tobacco, as in chewing, are, after being dissolved, absorbed through the mucous membrane. In these latter days we understand that the intense vascularity of the nasal mucous membrane permits rapid absorption and the nicotin readily enters the circulation, the same as we have demonstrated that solutions of morphin do, and as thoughtless rhinologists have shown, in their temporizing and palliative treatment of nasal catarrh and hay-fever by means of the cocain spray.

In considering the chewing of tobacco from a medical standpoint we have to consider the nicotin absorbed through the buccal and pharyngeal mucous membranes and the small amount probably swallowed, together with the draught on the salivary glands and the waste of saliva. The chewing, viewed from a polite standpoint, unless absolutely in private, cannot be considered other than in bad form. In the animal economy we have the secretory and excretory system of glands; the product of the former are essential to the proper performance of physiologic duty within the body and must be husbanded, and the latter are no longer needed and naturally seek the external world, but their proper disposal should be in private, away from the haunts of men surely not in a way to offend the feelings of others or to make of one's self a public nuisance. So tobacco-spitting cannot be excused under any circumstances from the polite standpoint, for the saliva is a secretion, not an excretion, and its free expectoration is a needless waste.

The use of tobacco by smoking is becoming more and more the almost exclusive way, and while in the earlier days the pipe was much in evidence, the cigar has almost crowded it out.

In tobacco smoke we have the following: nicotin, empyreumatic oil, butyric acid, carbonic acid, ammonia, paraffin, empyreumatic resin, acetic acid, carbonic oxid, carburetted hydrogen and water.

The chief effects of smoking are from the nicotin and empyreumatic oil, the first being an active poison—an infinitesimal quantity will destroy life—and the latter, which is the rank accumulation in the stem of the pipe, is also a potent poison, one drop on the tongue of a cat having been fatal. The nicotin and the oil both act on the nervous system, though differently, the nicotin paralyzing the heart by its action on the brain, while the oil confines itself chiefly to the spinal cord and the motor nerves. It will thus be seen that no part of the victim's equipment escapes the deadly effect of tobacco in excess; as Lankester observes, "the nicotin seizes on the main citadel and the distilled oil attacks the outposts, and the whole man—body and mind—is brought under their influence."

1. Smoking in excess is more harmful than chewing, for the reason that the nervous system is not only more injuriously affected, but the catarrhal disturbances of the air-passages render the smoker more liable to dangerous and fatal diseases of the air-passages.

2. The excessive smoker is not only more liable to pneumonia, la grippe, tuberculosis, laryngeal and pulmonary, as the sensitive mucous surface and the bankrupted nervous system present a double invitation at all times, but fatal results are more apt to occur. Every case of laryngeal tuberculosis coming under my observation for several years has presented a history of the victim being a smoker, in the majority of instances to excess.

3. Heart failure is a frequent complication and serious with excessive smokers.

4. Cigarette smoking is worse than either the cigar or the pipe, but only for the reason that, the cigarettes being milder tobacco, the smoker almost universally inhales the tobacco fumes, and when we realize the component parts of tobacco smoke and how direct the routes from the air vesicles of the lungs into the blood current we can appreciate the ill effect.

5. Inveighing against the cigarette on the ground that the paper is poisonous and the tobacco drugged, mixed with opium, Indian hemp, etc., is all wrong, as the cigarette if made of a milder tobacco, perfectly pure, and the paper unobjectionable, and smoked without inhaling and in a temperate way, is to be preferred.

6. The cigarette smoker nearly always inhales the smoke and, becoming habituated to this quick toxic action, he will not smoke without inhaling, whether he uses the cigarette, the cigar or the pipe, for the same reason that the morphin habitue accustomed to the hypodermic method will not be satisfied with the drug through the mouth; both victims want quick action.

7. Children who use tobacco before reaching maturity have their growth interrupted, as nothing more definitely interferes with the equilibrium of the tissue-building, digestion, assimilation, elimination, metabolism, than tobacco, and for these reasons its use favors gouty diseases, atheromatous degeneration, premature senility and decay. The excessive users of tobacco are crippled in their general equipment and are in no form to wrestle successfully with any disease.

8. He who smokes cigarettes to excess, or uses tobacco in any form to excess, is i danger of becoming an alcoholic, but in even greater danger of becoming a drugger, as tobacco is so closely allied to opium and Indian hemp. In a general way one excess invites another, as the will power becomes lessened.

9. Nothing is so apt to bankrupt the sexual equipment as tobacco, unless it be opium, as it stands to reason that a cerebrospinal paralyzant must obtund sexual desire and power.

10. The numerous mental wrecks, youths

who have come under my care during the past ten years, whose lives were failures, or who fill suicides' graves, impress me that to-day tobacco stands as the gravest danger confronting the new century, and the medical profession has a fearful responsibility in educating young men and their parents to appreciate this danger.

The business world is, I am glad to see, undertaking the solution of the tobacco problem the same as it has that of alcohol, in that it is declining to employ cigarette fiends as well as moderate or excessive drinkers.

I am firm in the view that the medical profession must study calmly, tolerantly temperately, the problems related to stimulants of all kinds, but tobacco and alcohol in particular, and they put themselves in best form for doing the best work along these lines and wielding their greatest influence for good by themselves being exemplars of temperance, self-restraint, self-denial and correct living.

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THE MAKING AND FITTING OF SPECTACLES AND EYEGLASSES FROM THE OPTICIAN'S STANDPOINT.*

By P. H. Meyer,

Buffalo, N. Y.

The *title,* "An Optician," suggests to me that it is one which covers a broad field of labor and science, compared with that which it occupied a generation ago. In line with the many discoveries in science, and the great improvements in mechanics, the work of the optician has been divided into many branches, each of which in a comparatively short space of time has developed into practically a science of its own. Among these the ones in which the physician is most actively interested no doubt are microscopy and refraction.

The microscope is the product of the labors of the physician and optician, as also are the ophthalmoscope and spectacle, as they are made to-day. They were planned and demanded by medical science and urged by the great strides in that study, they were brought to their present state of perfection.

To a person who has given the subject no thought it is probably difficult to realize wherein any great amount of science and mechanical ability are involved in the production of a pair of spectacles. It might be well to explain, at this point, that I do not refer to the glasses manufactured in large quantities and sold over the counters of dry goods and jewelry stores, to people with presbyopia and myopia, many of whom really require the attention of an oculist, and in an endeavor to avoid the supposed unnecessary expense of that course accumulate a small stock of spectacles.

Many people, if we follow from the beginning of their experience with the wearing of glasses, do so with the idea that a pair of spectacles are what they need to give them relief from headaches, nervousness or some ailment with the eyes themselves. They accordingly visit some store where glasses are sold, and where perhaps a professional looking man will seriously look at their eyes through mysterious looking instruments, and they are subjected to what appears to them a very scientific examination. Of course, they buy a pair of glasses and are confident at the time that they are going to be forever relieved from their ailments. These impressions, however, do not last long, as the course they have taken in the majority of cases of this kind, has a tendency to almost as abruptly lead them to a physician, as though some one had grasped them by the ear and led them to the door of the doctor.

This assertion is proven by the fact that in the course of ten years' observation from the position of a prescription-filling optician, I find that a large percentage of the people from whom I receive prescriptions have in their possession one or several pairs of glasses, which they had purchased from some one and which were not prescribed by a physician. The harm resulting from this course, in the majority of cases, is one of the main roads that lead the subject to the place where medical science is involved in producing spectacles and eyeglasses. Another is by way of the general physician to the eye specialist, and a third that of the patient directly to the oculist.

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*Read before the Secton on Ophthalmology, Otology, Rhinology and Laryngology, Buffalo Academy of Medicine.

Prescription in hand they visit the optician. I want to say here that at this stage the most essential part of suiting the patient with glasses is completed. But the question is, do most people, and I might even say physicians and oculists, realize the importance of the correct filling of that prescription, not only in relation to the perfect grinding of the lenses as prescribed, but also to the making of the frame, and adjusting them to the correct position before the eyes?

Here we have a branch of the optical business in which expert mechanism, precision and accuracy can be exercised with much farther reaching results than most persons realize.

Consider that a pair of glasses are carried on the face, that part of us which we most thoroughly shield from unbecoming additions, and that they are worn in connection with that most delicately constructed organ, the eye. Few persons, if any, would wear glasses from choice; if so, no doubt a short period of experimenting would suffice to alter their opinions, especially if they were not perfectly fitted. Glasses on most anyone can be worn with absolute comfort, as they can be so adjusted as to leave the wearer entirely unconscious of them after a comparatively short space of time is allowed, in which to become accustomed to them. Furthermore, when they really conform to and fit the face, they are not detrimental, but in many cases improve the appearance of the wearer.

Probably no one realizes as thoroughly as the oculist the importance attached to the position in which lenses are worn before the eyes. When we consider that the nature of the curvature and shapes of lenses are limited to a few—namely, spherical and cylindrical, convex and concave and prismatic, it seems a simple matter to mount and set them on the face. On the other hand, if a prism representing one degree of a circle correctly prescribed, will give a patient relief from headaches, stomach or nervous troubles, will not a prism of similar extent produced by incorrectly adjusted lenses cause the same trouble? And if a difference of five degrees in its axis in a slight cylindrical curved lens will relieve or distress the patient, does this not illustrate the importance of the lenses being set in a correct position?

We all know that no two faces are exactly alike, nor are two noses, consequently no two pairs of glasses dare be alike, if they fit perfectly. Does this not represent a field in itself for the practice of accuracy in mechanics?

Recently a nearsighted man said to me, "A few years ago I used to go into a store and fit myself out of a tray of glasses and now since doctors and opticians do my fitting, I am entirely dependent upon them for comfort." Upon asking him if he would like to go back to the old method he said, "no indeed, not I." That same gentleman visits the optician not less than once a month to have his glasses adjusted.

As an example, allow me to follow him a little farther; he has an inclination to hold his head a trifle higher than most persons, which fact was overlooked in the fitting of his glasses. This, of course, gave him a tendency to look a trifle below the center of his lenses most of the time. He complained of headaches and his stomach. The lenses were lowered 1-16 of an inch before his eyes and he was thereby relieved. The change in the position of the lenses obviated the effect of one degree of prism produced by the optical center of his lenses, being set a little higher than the visual plane.

Another case of the importance of accuracy in adjusting lenses before the eyes, is shown in one of a lady who recently travelled one hundred miles to her oculist. She was suffering with headache and her stomach. The prescription which relieved her was this, "reduce the angle of glasses five degrees." The fact that her glasses tilted a few degrees more than they should, no doubt gave the effect of a cylinder in a horizontal meridian, producing an astigmatic effect which she did not naturally have.

In a work on spectacles and eyeglasses by Dr. Phillips, a table is given wherein is shown the additional extent of cylindrical and spherical effects caused by incorrectly adjusted lenses, as cited in the above case.

Any optician engaged in making glasses according to prescriptions, could no doubt cite many cases wherein a difference of a small fraction of an inch in the position of the optical center of lenses before the eyes had given considerable discomfort. Of course there are many wearing glasses, who are not affected by a slight error in adjustment of the lenses, but I find that nearly all and especially those with a stomach or nerve ailment, are hypersensitive in regard to the position of their lenses.

It is a common occurrence to have a busy man or woman, whose glasses have become bent out of shape, leave their work during the rush of business to step into the store of an optician to have them readjusted, and in most cases they are out of line not more than 1-16 or 1-8 of an inch, which is sufficient to make most persons wearing glasses uncomfortable. As a rule, the optician does not charge for this service, which to me is a source of gratification because of these reasons: first, as it is a simple matter for the optician, requiring no further outlay than a moment of his time in its performance; second, for the slight service one is fully recompensed when the person in words and facial expression testifies to instant relief.

This is especially noticeable in the small boy who wears strong lenses, and who has had his frame bent out of its correct shape in a scramble. After readjusting his glasses, to hear him say, "Gee, that's fine." It is an easy matter to feel that he has some change coming to him.

To make glasses so that their frames do not easily bend out of shape and still be delicate in appearance, has been a subject of much study and experimenting on the part of the optician. No metal or other material has proven nearly so satisfactory for this purpose as gold, which after all is the most appropriate to wear on the face. In mechanical manipulation any mechanic of experience in this respect will grant its superiority. It is most cleanly, as it does not tarnish, rust or accumulate verdigris, as do metals sometimes used. It can be most satisfactorily repaired, and as it outlasts several of those made of any other metal used for this purpose, it is most economical.

Next in order to the correct fitting of a pair of glasses, is that they should remain so for as long a time as possible. That they be well made is, of course, essential to their being a perfect fit. The methods of writing measurements of the curvature and axis of lenses, so as to be legible to the physician and optician, have long been standardized. It is only within the last few years that the mountings of glasses have been produced in their present state of mechanical perfection, both in regard to the manner of fitting them before the eyes and the division of the material, so as to give the best results in their use.

Spectacles will probably always be considered the most satisfactory form of mounting lenses, mainly because of their remaining in a more stationary position before the eyes than do nose glasses. The latter style, while greatly improved in its construction during the past few years, is still the same in principle of adherence.

The eye glass for dress is neatest in appearance and most convenient for momentary use, but the spectacle will always be most practical, both in regard to its scientific value and the comfort derived from judicious division of its weight, in adjusting to the nose and ears.

Lens grinding is a branch of spectacle-making in which machinery is made to play an important part; not only is it conducive to labor-saving, but it is also valuable because of its regularity of purpose. However, no machine has been made that is its own master and judge of its work. It is necessary for the prescription optician to employ at least one expert lens-grinder, who in his capacity requires to be an artist in his line, if good results are to be had. To produce a lens with perfect regularity of curvature and entirely free from opacity requires skill and an eye trained by long experience. Since so many lenses are required wherein the optical centre is in a different position from that of the geometrical one, as in lenses combined with prisms, the expert lens grinder has grown considerably more necessary than heretofore, where glasses are made according to prescription.

It would require a visit to the optician's workshop to realize the mechanical skill and accuracy exercised in the completing of a well made pair of glasses. Aside from the importance of precision and care necessary in the making of an instrument to be used in connection with the human eye, it is a difficult feature of workmanship to combine metal and glass when neatness and delicacy are required. Everything is made to correspond with measurements, the patient choosing the style of glasses, his face is measured and each part made to conform to the peculiarities of the wearer. Individualism is necessary in perfect fitting glasses. We all have our own faces, so must we all have our own spectacles to be entirely comfortable in using them.

The refractionist well knows the many different grades of lenses, curvatures and combinations, that the optician is required to make. While there are not very many kinds of glasses, if we consider their general style only, exact similarity in completed pairs, when actually fitted to the face, are far less common than is sameness in the prescriptions after which the lenses are made.

It is true that only a few years ago when glasses encircled with a rim were most generally used, the sizes of the lens rims were limited to less than half a dozen, but since the advent of rimless glasses, there is no limitation to the sizes and shapes lenses are made in their adaptation to the face. Even in rimmed glasses, which at this time are used only where durability is necessary, as in cases of small children, there is a considerably larger variety of sizes than were used in former years.

A feature especially noteworthy in our branch of spectacle-making is a class of people who form a majority of those who are our patrons. The fact that errors of refraction in the eyes and muscular irregularities are frequently the cause, or are contributory to the nervous and stomach ailments and headaches, will suggest to you that persons afflicted with this class of difficulties are the most numerous of our patrons.

As to the relation of our work to that of the physician, in comparison, our business and that of the druggist are more nearly similar than any other mercantile line. It, however, greatly differs in that we deal directly with the principle, while the druggist successfully fills prescriptions without a visit from the patient

Of course, spectacle-making is a mechanical vocation in every sense, but spectacle-selling is not, and in this respect I do not know just what mercantile line of business with which to compare the optician's work. I think almost every merchant could recall instances of dealing with a customer, who would not be suited, regardless of every thing that he could do for them. As they leave his store he will content himself with the thought that the person was a crank.

I by no means believe the optician's customers to be cranks in the sense with which the dictionary defines the word, but I do believe that in general they are a different class from those with which other merchants do business.

If we could imbibe into a model storekeeper a thorough knowledge of spectacle-fitting without that of spectacle-selling, and place him suddenly in an optician's store, he would probably believe that most of his customers were whimsical. By this I mean to illustrate that the spectacle-making optician requires, in order to be successful, a certain different sort of mercantile training from any other class of storekeeper, which only years of experience in this branch of business will develop.

Fortunately for the optician, some oculists instruct their patients in some cases as to the style of glasses he wishes them to wear. Especially when spectacles are to be worn when nose glasses are preferred by the patient is this fortunate, as it is a difficult matter to make such persons understand that spectacles are what they ought to wear. Between himself and the patient the physician undoubtedly is master of the situation while relatively the optician is not always.

There are quite a variety of styles and shapes of glasses made, and as in any article of this nature only one kind is the best suited to each case. The optician is expected to know which is that best kind, and if it does not at the time suit the cosmetic taste of the patient, the well-trained optician will overcome the situation by the customers having that which is best for them and, of course, with perfect work always resulting in the retention of the person's good-will. There is no class of patrons that a first-class optician would rather deal with than those who have previously been ill-fitted. No one except those who wear glasses can realize what a continuous source of discomfort an incorrectly fitted pair of glasses are. I believe most persons perfectly fitted with glasses do not forget the optician who made them. This fact coupled with the appreciation of the successful oculist, of perfection in this class of work, constitutes the foundation upon which a spectacle-business is established.

I noticed recently in a local Sunday paper an article boldly headed "King of Oculists." It described one of fame in this branch of medical science in Europe. Among others noted, one of the most distinguishing features of this physician's work, was that he always insisted on his patients going to one certain optician in his city for their glasses, and much as was his confidence in this man's ability he always had the patient return with the glasses to him, so that he could be sure that they were perfectly made and adjusted. As exactly the same course of procedure is insisted upon not only by the far-famed oculists of our city but also by some of the locally famous ones, to make this fact noteworthy in our country in the description of a European oculist seems to me far fetched. I, for one, am in a position to know what a superior nature of workmanship in glasses some oculists of Buffalo require in order to bestow their approval.

I believe that no one realizes more thoroughly than the leading oculists of our city, how essential a perfectly made and adjusted pair of glasses are to success in the results of their use. The perfect fit is not usually obtained by a haphazard manner of buying nor making them, but by judicious choosing of an optician who will make and fit them according to a plan based on scientific truths—a plan in the following of which the conforming them to the individuality of the face and needs of the wearer has been the main consideration.

A great deal can be said in describing the making of glasses, not only in regard to the grinding of the lenses from the raw material to the completing of the spectacles, and more especially of the mechanical ability required in making the final adjustment in correctly fitting them to the face. But as the physician cannot be much interested in purely mechanical procedures, I have endeavored to remain in the province including the consideration necessary to the successful making and adjusting of glasses. That these are numerous you will grant from your own experiences in your profession, wherein great depth and technicality are involved in everything pertaining to it.

Since the medical profession have interested themselves in spectacles these conditions have at least, in a small degree, blended themselves into the art of spectacle-making. They are an article of which the physician is the architect, and you surely will appreciate that if their correct prescribing requires long years of study in addition to the great problem of medicine, they at least require mechanism of precision in their making. If not I want to say that much of the energy of my business life has been wasted.

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THE TEMPLE OF AESCULAPIUS.

THE *Lancet* announces (on what authority it does not state) that this long-sought-for shrine has been discovered at last. The fact is of great archæological interest, and of equally great interest in the medical world.

It seems that Dr. Rudolph Herzog is the lucky man, and that the discovery was made under an ancient Byzantine church in the island of Cos, in the Ægean Sea—an island which, as is well known, was the seat of the cult of Aesculapius and the birthplace of Hippocrates. The discovery seems to be authentic. The columns of the temple have been found, and an inscription in Greek to the effect that "sundry elders from different states have decided by vote to carry on the holy asylum of Aesculapius." A statue of Hygeia also has been found, and an image of a serpent, the well-known symbol of the healing art. Excavations are being made and further discoveries of interest are anticipated.

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"A STORY now goes the rounds among German papers regarding the celebrated Bergmann, too good to be lost.

"Professor Bergmann sent one of his richest patients, attacked by an articular affection, to Kreuznach, to follow the chloride treatment. At the end of last Autumn Bergmann met his client on the promenade at Tilleul; the patient was absolutely helpless, and was being pulled around in a chair.

"'Why, my old friend!' exclaimed Professor Bergmann, 'you appear to be in bad shape. What are you doing here?'

"'I came here to take the baths and mechanotherapy.'

"'What ass sent you here?' asked Bergmann, angrily. 'This is no place for your case.'

"'You sent me here, Herr Doctor,' replied the sufferer."

There are more Bergmanns than one in this world. Some are in New York, Chicago, St. Louis, and even—we were going to say in—but what's the use of filing a bill of particulars? After all, this thing of medicine is so full of humor at times that it must be viewed by other standards than that of a grave professor.—*Cincinnati Lancet-Clinic.*

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COMBATTING THE TOXINS.

THE whole medical world has come to recognize the vital role of the toxins in the causation of nearly all prevailing diseases. Hence the overdone craze for antitoxins of every nature. Beyond the remark that they have been overdone and overrated by over sanguine enthusiasts, we have no quarrel with their advocates whose zeal often amounts to partisanship.

The more conservative of the profession rely on elimination as the sheet anchor. Hence the multiplication of salines and evacuants of every kind. Almost every pharmaceutical chemist has exploited a saline in some form, effervescent sulphate of magnesium being varied with phosphate of sodium and other laxative salts. The Dusal Chemical Company has left them all in the lurch by combining eliminants—especially the lithia salts—with the other accredited salines, and the product is aptly named "Sal-Eliminant."

It is a decided advance this "Sal-Eliminant," as every practising physician will realize at a glance.

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Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE LEGAL AND MEDICAL ASPECT OF FOOD ADULTERATION.*

By H. W. Wiley, M.D.

A short time ago the newspapers were filled with accounts of wholesale poisoning in England from the use of beer which it was found contained arsenic. Arsenical compounds have long been known as almost perfect antiseptics, but so far as I know there has been no deliberate addition of arsenical salts to foods for preservation purposes. The most inordinate cupidity of the food adulterator has not led him so far as that. The presence of arsenic, therefore, in this beer, after first having been ascribed to its use as an antiseptic, was finally traced to the fact that grape-sugar, so-called—that is, a sugar made by the hydrolysis of starch with an acid—had been employed in part as a substitute for malt in the breweries. Further investigation showed, happily for us, that the grape-sugars which had produced this unfortunate effect were not, as was at first asserted, imported into England from this country. They were found to be of domestic manufacture, and it was shown that they had been made from potato starch, using oil of vitriol (sulphuric acid) as the hydrolyzing agent. The sulphur derived from iron pyrites which was employed in the manufacture of this acid was found to be arseniferous, and thus considerable quantities of arsenic found their way into the sulphuric acid and also into the grape-sugar made therefrom. I say happily for us this grape-sugar was not of American origin. In a letter lately received from Dr. Bernard Dyer, one of the most prominent public analysts of England, he says, writing under date of December 17:

"You probably saw in some of the newspapers a record of the fact that a number of people have suffered severely, and as it is alleged, in some cases fatally, from arsenical poisoning which has been traced to the use in the brewing of certain beers of glucose manufactured with impure sulphuric acid—*i.e.*, acid made from arsenical pyrites. I have myself found arsenic in several samples, though not in such quantities as to cause alarm. What would be interesting to know is whether such poisoning has been going on for a long time unsuspected, or whether the occurrence is due to some particular and unusually impure parcel of glucose. It will be, from a national point of view, no doubt a satisfaction to you to know that, although so much of our glucose is imported from America, it does not appear to have been American glucose that was at fault, the offending product appearing to have been manufactured in England." American glucose is manufactured with hydrochloric acid.

This injury to the public health from the drinking of beer in the Midland districts of Manchester and Liverpool was of sufficient magnitude to justify a public inquiry. There were more than 500 persons suffering from poisonous effects in Manchester alone at the end of November. A number of deaths occurred, although most of the cases recovered. The health officers of Salford, where a great number of cases occurred, found arsenic in one sample of glucose or

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*Read before the Society of Medical Jurisprudence, in New York. Reprinted from *Med. Age*.

grape-sugar and in one sample of inverted sugar, due to the use of sulphuric acid in their manufacture.

The patients all seemed to be suffering from the disease which is described as peripheral neuritis. I cannot gather from the English journals complete statistics of all the cases which have been reported, but certainly more than 2,000 such cases have been under treatment. All of the authors who have written on the matter do not attribute the effect solely to arsenic. One medical authority thinks it is due to the use on growing hops of Bordeaux mixture, which is a combination of salts of lime and copper, while others allege that it comes from the use of antiseptics, such as salicylic, sulphuric, and boracic acids, used in the beer or in cleaning the barrels that held it.

As a natural result public interest in England has been thoroughly aroused to the necessity of securing a better control of human foods. It is rather melancholy to contemplate the fact, but it seems that some such wholesale poisoning by adulterants will have to be experienced in this country before the public mind will be awakened to the necessity of the control by federal legislation of the manufacture and transportation of adulterated foods. It is surprising to find how little interest our people take in this matter, which stands so near to their health and even their prosperity. Measures which affect only small bodies of organized labor or insignificant manufacturing enterprises are brought before Congress and pushed to a successful issue, while the great problem of the purity and wholesomeness of human food is not able to secure a hearing before the Congress of the United States.

In discussing the subject of food adulteration before this learned body I am impressed with the fact that only those points should be presented which touch on the one hand the health of the consumer, and on the other the statutes made and provided to regulate traffic in food adulterants. The existence of a harmless adulterant in food may on the one hand offend the statute, but on the other be no menace to health; while it is possible that a food may contain an injurious adulterant the use of which is not forbidden by any enactment. I need not call the attention of the legal members of this association to the many laws which have been made by the several States and corporations in regard to food adulteration. I would, however, like to call your attention to the classification of these laws in respect of their nature.

First, it may be said that the ostensible purpose of all laws of this kind is restrictive. Every one admits that the admixture of certain substances of foods may be practised without detriment either to the purse or the health, and therefore the absolute prohibition of all adulteration would work hardship and injury to legitimate business. The following classification I believe will include all existing or proposed laws regulating food adulteration:

First, General Laws.—These include all laws which do not mention any article of food by name, but consist only of general principles, applicable to all food products. A type of these laws is shown in the Brosius bill now pending before the National House of Representatives, and its counterpart, the Mason bill, pending before the Senate of the United States. These two bills are identical in language and represent the results of many years of effort to secure national legislation. They have the full approval of three successive national pure food congresses and of large numbers of organized business associations, sanitary congresses, and scientific bodies throughout the United States. The nature of this bill is best shown by a few extracts from the definitions of food products which it contains:

> SEC. 5. . . . The term "food," as used herein, shall include all articles used for food, drink, confectionery, or condiment by man or domestic animals, whether simple, mixed, or compound. The term "misbranded," as used herein, shall apply to all drugs, or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement regarding the ingredients or substances contained in such article, which statement shall be false or misleading in any particular, and to any food or drug product which is falsely branded as

to the State, Territory, or country in which it is manufactured or produced.

Sec. 6. That for purposes of this Act an article shall be deemed adulterated—

In the case of food:

First. If any substance or substances has or have been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength, so that such product, when offered for sale, shall deceive or tend to deceive the purchaser.

Second. If any substance or substances has or have been substituted wholly or in part for the article, so that the product, when sold, shall deceive or tend to deceive the purchaser.

Third. If any valuable constituent of the article has been wholly or in part abstracted, so that the product, when sold, shall deceive or tend to deceive the purchaser.

Fourth. If it be an imitation of or offered for sale under the distinctive name of another article: *Provided,* That the term "distinctive name" shall not be construed as applying to any article sold or offered for sale under a name that has come into general use to indicate the class or kind of the article if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

Fifth. If it be mixed, colored, powdered, or stained in a manner whereby damage or inferiority is concealed, so that such product, when sold, shall deceive or tend to deceive the purchaser.

Sixth. If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it.

Seventh. If it be labeled or branded with intent so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or is an imitation, either in package or label, of another substance of a previously established name, or which has been trade-marked or patented.

Eighth. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter.

Second, Discriminating Laws.—This class of legislation refers to those acts which are made specifically for certain articles of food. For the most part these laws contain nothing whatever of an objectionable nature, and the only cause of complaint in regard to them is that they discriminate between various food products. The spirit of fairness which has characterized and should continue to characterize legislation in this country requires that all similar products be treated alike in legislation. For this purpose the enactment of a general law, such as that mentioned above, would cover all possible contingencies and place all food products on exactly the same footing. The discriminating laws relate almost exclusively to dairy products. Great numbers of municipalities and States in this country have such discriminating laws.

Third, Prohibitive Laws.—Prohibition laws are of two kinds: (1) Those which prohibit the manufacture and sale of food products which are wholesome and nutritious; (2) laws which prohibit the manufacture and sale of added deleterious substances.

Aside from the fact that the latter class of laws is discriminating, there can be no objection to their enactment, provided the deleterious effect of the prohibited ingredient were established beyond any reasonable doubt. In point of fact, however, there have been very few attempts to determine by impartial and competent experts the character of many of the prohibited articles, and their effect upon the human organism. Some of the articles most commonly prohibited are preservatives such as salicylic acid and formaldehyd, and mineral substances such as alum and lime. Interested parties may employ persons to prove or disprove the harmless or harmful character of these ingredients, and the results of their investigations usually coincides with the wishes of their employers, an event naturally to be expected. The Brosius bill, above referred to, makes provision for the impartial study of all these subjects by a commission to be appointed jointly by the President of the United States and the Secretary of Agriculture, in accordance with the following provision known as Section 7 of the bill:

> That it shall be the duty of the Secretary of Agriculture to fix standards of food products when advisable, and to determine the wholesomeness or unwholesomeness of preservatives and other substances which are or may be added to foods, and to aid him in reaching just decisions in such matters, he is authorized to call upon the

Director of the Bureau of Chemistry and the chairman of the committee on food standards of the Association of Official Agricultural Chemists, and such physicians, not less than five, as the President of the United States shall select, three of whom shall be from the Medical Department of the Army, the Navy, and the Marine Hospital Service, and not less than five experts, to be selected by the Secretary of Agriculture by reason of their attainments in physiological chemistry, hygiene, commerce, and manufactures, to consider jointly the standards of all food products (within the meaning of this Act), and to study the effect of the preservatives and other substances added to food products on the health of the consumer; and when so determined and approved by the Secretary of Agriculture such standards shall guide the chemists of the Department of Agriculture in the performance of the duties imposed upon them by this Act and shall remain the standards before all the United States courts. It shall be the duty of the Secretary of Agriculture, either directly or through the Director of the Bureau of Chemistry and the chairman of the committee on food standards of the Association of Official Agricultural Chemists and medical officers and experts before mentioned, to confer with and consult, when so requested, the duly accredited representatives of all industries producing articles for which standards shall be established under the provisions of this Act.

Examples of the prohibitive laws of the first kind mentioned above are found in a few of the States and relate mostly to the manufacture and sale of oleomargarine. The injustice of such a prohibitive law or laws is so patent as to need no further illustration, and the courts of last resort have usually pronounced such restrictions of legitimate trade unconstitutional. An example of the prohibitive legislation referred to is shown in the following quotation made from an act passed a few years ago in the State of Pennsylvania:

Section 1. Be it enacted, etc., That no person, firm, or corporate body shall manufacture out of any oleaginous substance or any compound of the same, other than that produced from unadulterated milk or cream from the same, any article designed to take the place of butter or cheese produced from pure unadulterated milk or cream from the same, or of any imitation or adulterated butter or cheese, nor shall sell or offer for sale, or have in his, her, or their possession with intent to sell the same as an article of food.

Another striking instance of the operation of prohibitive legislation is shown in New York, where skim milk is not allowed to be sold, I am told. This unwise provision causes many people to use beer as a substitute for skim-milk, although its food value is far inferior, and its alcoholic content cannot be said to be advantageous to young children. Skim-milk is a wholesome and nutritious food, and as such its sale and consumption should not be prohibited.

Fourth.—The fourth class of legislation in regard to food adulteration may be designated as *fiscal*, because under the pretense of raising revenue it lays a tax on wholesome food products. I do not include among such laws the internal revenue laws laying taxes on spirits and fermented beverages. These laws are what they pretend to be, viz., revenue producers. But the tax of two cents per pound which is placed on manufactured oleomargarine and the tax of four cents per barrel on mixed flour are examples of laws regulating food adulteration under the pretense of raising revenue. The authors of these laws do not deny that their purpose is restrictive and prohibitive and not fiscal. In times of necessity I am sure I should not oppose the taxation of food products to raise revenue to meet great exigencies in the history of our nation, but it is a pitiful pretense to see a paltry sum collected into the treasury by taxes on perfectly wholesome food products. There is no one more bitterly opposed to fraud in foods than I am, and no one who would punish more severely all venders who sell to innocent customers oleomargarine as butter, or maize meal as wheat flour. Such an attempt to obtain money under false pretenses should be punished not only by fine but by imprisonment. I never have been able to bring myself to the belief, however, that the correct way to prevent frauds of this kind is to tax the food products. On the other hand, I think such a tax is an inducement to fraud, and creates and conserves that which it pretends to detect and destroy.

Thoroughly obnoxious to fair-minded men, it seems to me, is the taxing of the process of coloration in one article of food and allowing it to be practised in another with impunity, and with freedom from all restriction. Such enactments lack every element which appeals to the broad principles of justice and fair treatment.

Having thus summarized briefly the different classes of legislation which have been proposed for controlling the adulteration of foods, it is proper to add a classification of the different methods of adulteration practised. Preliminary to this I may say that chemistry is the science which has chiefly to do with adulterants of food. Not only does chemistry detect these adulterants, but alas! too often it shows how they can be made. It must be admitted, however, that chemistry is always willing to expiate the sins which are performed in her name, and more than willing to help punish the sinner. Often one of the principal recommendations of a food adulterant is the difficulty of its detection, but no matter how great this difficulty may be, chemistry has never failed to supply the means to detect the fraud and bring the culprit to justice.

Broadly, food adulterants may be divided into two categories: (1) innocuous adulterants comprising those which are neutral or even nutritious and without bad effect upon the organism; (2) noxious adulterants consisting of that class of sophistications which are injurious directly or indirectly to health.

It is evident that according to circumstances many kinds of adulteration may be sometimes in one class and sometimes in the other. From the point of view of medical jurisprudence, therefore, the above classification is not important. In fact, I once heard a very distinguished expert say under oath that he believed that all adulterants, no matter how harmless they might seem, were injurious to health, because even if they did not injuriously affect the body they were an insult to the good taste and sensibilities of the person using them.

The principal processes of food adulteration may be classified as follows:

1. Adulteration secured by the elimination of some valuable constituent. The most common form of this adulteration perhaps is the sale of skim-milk or partially creamed milk as the genuine article.

It is well known that in milking a cow the portions of the milk secured at the last are richer in fat than those secured at the beginning. Hence, a cow may be partially milked and the product sold as whole milk, while the residue remaining in the udder may be subsequently extracted and masqueraded as cream. Thus the very method of milking may become a means of adulteration.

2. The addition of some harmless diluent. Dairy products furnish another example of this practice, illustrated in the hoary joke of the well and the milk pail.

3. Adulteration by the substitution of a cheaper for a dearer product. This form of adulteration is illustrated in the preparation and sale of cottonseed oil as olive oil, of oleomargarine for butter, or of horse-flesh as beef.

4. Adulteration by coloring an inferior product to resemble a superior. This is a very common form of adulteration. It is shown in the coloring of green vegetables by copper salts; as, for instance, the French peas, which are very much liked and so commonly eaten; or in the coloring of butter, giving the butter of inferior quality the tint of a superior article; or in the coloring of oleomargarine so as to resemble butter; and the coloring of preserved meats to match the natural tints.

5. Food adulteration by the addition of antiseptics. This is probably the most common of all forms of adulteration, and all perishable articles of food have become illustrations to a greater or less degree of this class.

In considering the problem relative to the influence of adulterated food products on health I realize the practical impossibility of defining in absolute terms the extent of the injury which may result in any given case. Food is the fundamental factor in individual and national advancement. It may be said, *caeteris paribus,* that that individual or nation is the strongest and best which is the best fed. Therefore, the study of the effect of food upon the health lies at the very basis of social and economic progress. It is well to safeguard the education of children and of youth; it is important that the religious and moral influences that surround them should be carefully considered; but before this comes the necessity of nourishment. Long before the infant knows good from evil, or noun from verb, it realizes the necessity of sustenance. Mistakes which are made at the beginning are difficult of correction, and therefore the character of the foods of infants and children is a problem of the first importance.

Unfortunately, or fortunately, fashionable civilized life has brought largely into discredit nature's method of nourishing infants, and hence we have thrown upon the market a legion of so-called infants' foods, many of which, I am sorry to say, are not exactly suited to the juvenile digestive functions. It may be stated with certainty that what would be considered a healthy and unadulterated food for an adult might with justice be considered an unwholesome and adulterated food for an infant.

There is perhaps no other subject to which the attention of the medical fraternity could be so profitably directed as to the careful study of the character of the infants' foods offered as a substitute for mothers' milk. Another point which should be taken into consideration here is that the injury produced by artificial or adulterated foods in the infant lasts probably through life, if life be continued to any length of time, or hastens the death of the child. On the other hand, the adult and healthy stomach may sustain without injury the exhibition of adulterated foods to a limited extent. Therefore, it is evident that the age limit is an important factor in the study of this subject. It is plain, without argument, that infants' food should correspond as nearly as possible to the average healthy milk of the mother. Its chemical composition can be closely imitated in the artificial foods, which of course in the case of infants should be the milk of the cow or other domesticated animal, modified to resemble, as nearly as possible, the mean composition of mothers' milk.

In the case of adulterated foods the questions which arise are extremely complicated. I have just alluded to the fact that the healthy adult stomach can bear with impunity the exhibition of adulterants, at least for a time. It is hardly fair, however, to assume from this fact that such adulterants are harmless. Rather should we judge them from their accumulative effect—that is, the final effect which their continued use would produce. They must also be judged largely from the effect which they will have upon digestive systems disordered or weakened by disease or advancing years. In other words, the duty of the law and of the medical profession is to protect the weak and the helpless rather than the strong and independent. It is safe, therefore, to predicate this rule, viz., that that form of adulteration which by any final action upon a healthy organism or by any immediate action upon a weakened organism produces harmful effects should be prohibited. On the other hand, those forms of adulterants which are plainly indicated upon the label of the food, and therefore work no deception upon the purchaser, may be permitted, providing they do not, under the above circumstances, produce any injurious effects.

It may be well at this point to state in detail a few of the forms of adulterants which typify the above statement.

I will first call attention to the fact that in my opinion there are some forms of adulterants which are not injurious to health. In this connection I may mention the food product known as glucose. Glucose is a term applied to a mixture of sugars derived from starch by hydrolysis. The hydrolytic effects are produced usually by a mineral acid, as, for example, sulphuric or hydrochloric acid. Now it is perfectly evident that the hydrolysis of starch cannot produce an injurious substance except when conducted in an improper manner. In the natural process of digestion starch, which is one of the most important foods, is hydrolyzed first by the saliva and finally by the secretions of the small intestines, particularly that of the pancreas. The final products are the same as those produced by artificial hydrolysis. In my opinion, therefore, well made glucose is a wholesome and nutritious food. When mixed with honey it is both palatable and nutritious, and this mixture is one of the most common forms of honey adulteration. Such an adulteration is to be condemned in the most unmeasured terms, but not because of the unwholesomeness of the product. If, on the other hand, glucose be manufactured with sulphuric acid containing a trace of arsenic, severe poisoning cases may result, as has been already noted in the case of the beer poisoning at Manchester.

The food fats of healthy animals, such as lard and tallow, cannot be regarded as unwholesome products either when consumed in connection with other portions of the carcass or as separate foods. These fats are universally employed in our kitchen, and there is no reason for believing that when they are combined to form a pure article, as oleomargarine, they possess any unwholesome properties. The fraudulent sale of oleomargarine as butter cannot be too severely condemned, but, as is the case with glucose, not on account of unwholesomeness. The same is true of the many vegetable oils, such as the oil of cottonseed, sunflower oil, and peanut oil, which have been largely employed as salad dressings in the place of olive oil. The adulteration of olive oil with these bodies is most reprehensible, but, again, the objections thereto cannot rest on hygienic grounds. But I will not dwell longer on this form of harmless adulterants, since we are principally interested in the present instance with that other form of adulterants which directly or indirectly, sooner or later, produce injurious effect.

Among these may be reckoned a great many of the artificial colors. I have already spoken of the use of mineral salts, such as those of copper and zinc, for preserving the green color of vegetable foods. Many coal tar colors are used for similar purposes, especially with animal products. A large list of such colors might be mentioned for use with fresh and preserved meats and with dairy products. Formerly white butter was colored yellow, to resemble the more desirable varieties, by the use of a vegetable substance called annato. Lately this vegetable color, which by most persons is considered harmless has been almost entirely superseded by yellow coal-tar colors; in fact, it is difficult to obtain in the open market at the present day butter which has not been artificially colored. These coal-tar colors when taken in considerable quantities produce serious disturbances of the digestive organs. In the minute quantities employed it is probable that these colors are harmless, but the burden of proof rests upon those who use them; the presumption of guilt lies upon them. It is easy to extract from the quantity of butter used by a hungry man at an ordinary meal a sufficient quantity of this coloring matter to dye a large tuft of white silk a beautiful saffron. This coloring matter is absolutely indigestible, and thus it is fair to assume that when it has been absorbed into the system it is eliminated slowly and with difficulty. The coloring of butter artificially is only an excuse for poor dairying, since if milk cows be properly fed they will produce the year round a rich yellow cream, giving a delicious butter of the most delicate natural tint. It is unfortunate that the public taste has been so educated, or perhaps better, vitiated, in the use of artificially colored butter, that the more delicate tint of the natural article is a bar to its sale.

By far the most numerous and dangerous of the deleterious substances in foods are those which are added to prevent decay. The character of all common antiseptics which have been used for food preservation, and the methods of detecting them in foods, have been very thoroughly investigated by the Division of Chemistry of the Department of Agriculture.

In all, sixty-seven different samples of antiseptics which are advertised in the market as being effective have lately been examined. Of these thirty-three contained borax or boric acid; eight were sulphites of sodium, potassium, or calcium; five contained salicylic acid or its sodium salts; four benzoic acid or its sodium salts; one was a mixture of boric and salicylic acids; one, boric acid and ammonium fluoride; three, formaldehyd; two, pyroligneous acid; one, ammonium fluorid; and one, betanaphthol.

From the above statement it will be seen that one-half of the antiseptics offered for sale consist of borax or boric acid. In passing, I may say that of all the common preservatives employed boric acid or its compounds is least objectionable. In fact, I will even go so far as to say that I would not see much objection to the use of borax in certain food products if the antiseptic and the quantity employed in each case were plainly described on the label. In other words, it does not appear from the evidence at our disposal that small quantities of borax exercise any injurious effects upon the healthy adult. The question of what effect it would have upon the weakened organism or upon infants is reserved for further consideration.

The next most abundant class of antiseptics is composed of the sulphites. Sulphurous acid is a well known preservative, and its efficiency in this direction when combined with a base is but little diminished. The sulphites as a rule are easily soluble, and these are readily mixed with moist or liquid food products. In the form of a fine powder sulphites are easily applied to smooth surfaces such as meats, and with very happy effects in preventing decay.

By far the most objectionable of the antiseptics contained in the sixty-seven samples referred to is salicylic acid. As a preservative substance salicylic acid probably is to be preferred to any other if its effects upon digestion are not taken into account. It is cheap, white in a powder, or colorless in solution, almost tasteless, and extremely effective as a germicide. Its use, however, even in small quantities, is to be unqualifiedly condemned. It deranges digestion, interferes with assimilation, and exercises a generally deleterious effect upon the system.

It must not be supposed that in buying sixty-seven samples in the open market we secured every variety of preservative manufactured. There are many which are not on the list, notably saccharin and nitrate of potassium. Of these saccharin is highly objectionable, while nitrate of potassium in condimental doses may be permitted. Formaldehyd has lately come into prominent use as a preservative of milk and cream. The quantities employed are minute, but there is no doubt of the highly injurious effects of even minute quantities upon infants and weakened adults. The temptation to keep the baby's milk sweet by the addition of a little formaldehyd is indeed great, but it should be resisted.

The use of fluorin as a preservative is somewhat dangerous, and fluorids should be rigorously excluded, at least until it is demonstrated that they are harmless.

The preservatives above referred to are often sold under trade names which give no clear idea of their composition.

The sale of injurious substances under such fanciful names is a crime against the community, and those who engage in it ought to be adequately punished.

I have already called attention to the fact that if the pure food legislation now pending should be enacted by Congress, the Secretary of Agriculture will be empowered, with the assistance of a board of experts, to study carefully in an unbiased way all substances alleged to be deleterious to the health. When such a study as this is completed the medical problems involved in this matter will be more easy of solution. I almost hesitate to say anything in regard to the legal difficulties which attend the securing of pure food. In the present state of affairs there is such a difference in State and municipal laws as to constitute a perfect legal maze. Manufacturers and dealers in sophisticated goods who wish to be honest, and we may assume that they all do, are confronted with a different state of affairs in almost every State of the Union. One of the strongest reasons for pure food legislation lies in the fact that such legislation would be accepted as a standard or guide in the making of new laws, and would also be a potent factor in securing modifications of all existing laws so as to approach a harmonious system.

Another matter which is of interest from a legal and medical point of view is the method, now generally in vogue, of employing experts. It is evident that the best results from expert testimony will be reached only when the court and not the litigant is the employing party. What we want in such testimony is facts, and these are difficult to get from *ex parte* evidence, even if it be of an expert character. It appears to me, therefore, that the best service which this association can render just now to the cause of pure food would be to secure the enactment of the Brosius bill, or some similar measure, into a law. In my opinion there is no public agitation which will result in greater good than that which relates to the purity of foods. Life is the strongest passion of the race, and yet we find ourselves taking little interest in that factor, which more than any other affects and lengthens all our lives. Pure food, well prepared and well digested, will add many years to the average life of man, while at the same time it will make his life freer from disease and more productive of good; his power will be conserved; his happiness increased; and his sojourn on earth made more useful and grateful in every way.

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WEALTH MADE BY CHEMISTS.

USES FOUND FOR BY-PRODUCTS FORMERLY WASTED.

THE expert chemist is an important figure in the industrial world to-day. He can earn not only fame, but also a large income, and he saves manufacturers many millions of dollars every year.

Of course, nine out of ten chemists stick to the old routine, but the tenth goes in for industrial chemistry and either allies himself to some progressive and flourishing manufacturer or independently conducts his industrial experiments and spends his time and brains in devising schemes for the utilization of by-products.

One doesn't talk much about waste products now. So little is wasted that it doesn't deserve mention. The Chicago joke that the packing houses utilize everything about the pigs save their squeals, and are planning to make the squeals into whistles, has more point than most Chicago jokes.

Probably the great slaughter houses furnish the most familiar illustration of the modern thrift in the utilization of what was formerly considered waste; and even the smaller abattoirs, while they haven't attained the scientific perfection of the Chicago packing houses, are reformed characters.

It was only a few years ago that the abattoir was usually built upon the bank of a stream, and all refuse was washed into the stream. In course of time neighbors were inconsiderate enough to protest against the practice. Sanitary bees invaded innumerable bonnets, and a howl of protest went up against the abattoirs. It was necessary to dispose of the refuse in some fashion. Chemists were called in.

Methods for drying the refuse and extracting all the grease were developed. The grease went into the manufacture of soap. The residue was converted into fertilizer. After jelly had been made from the hoofs the hoofs and horns were used for buttons, knife handles, etc. The health of the neighborhood and the income of the slaughter men went up.

The development of the tremendous aniline color industry is altogether due to chemical experiment with waste product. In the dry distillation of coal or wood for gas, the gas passes through a succession of washers, which take out its impurities. These impurities, including ammonia, carbolic acid, acetic acid and various nitrogen compounds were formerly waste, but are now separated and used. In fact, nearly all of the acetic acid in the market is secured from the dry distillation of wood.

Five per cent. of the coal used in gas manufacture is coal tar, and by experiment chemists found that this coal tar, always regarded as waste residue, contained substances useful in the making of dyes. Fully 10 per cent. of the weight of the coal tar is available for this purpose, and upon the basis of this discovery the enormous coal tar color industry has grown.

New plants have been put into many of the coke regions to collect the coal tar liberated in coke manufacture, and it will not be long before the open coke oven will be a thing of the past. Where coal is burned in an open oven no coal tar can be collected and large profits are literally thrown away, but by burning the coal in closed retorts all the coal tar can be recovered and used.

This color industry, which chemists call the greatest of the modern chemical industries, has called for other chemical developments. It demands large quantities of sulphuric acid, of soda, etc., and chemists have sharpened their wits upon the problem of obtaining these products at a minimum expense.

Until recently the greater part of the sulphur used in this country was imported from Sicily. Now, through chemical processes, the sulphur contained in gold, silver and zinc is liberated and burned to sulphur dioxid, from which almost all of our sulphuric acid is made.

In connection with all of our mining development, chemistry has played an important part. Ores can be mined with profit to-day that would have been practically worthless a few years ago. In the old mining days only high grade ore was profitable, and only a certain percentage of the gold contained in the ore was freed.

The tailings thrown aside held a considerable quantity of gold, but could not be worked by the ordinary processes, so were piled mountain high and disregarded until chemists discovered that the gold was soluble in potassium cyanide, and that by washing in a very weak solution of potassium cyanide, the tailing gold could be profitably separated from the refuse. The same process has led to the working of low grade ores, running $4 or $5 to the ton, which could not be profitably worked by the ordinary mining processes.

The silver contained in lead has also been freed and utilized. It was found by chemists that when the melted lead was mixed with zinc the silver formed an alloy with the zinc and floated to the surface. When this mass was taken from the lead and heated in a retort, the zinc, being volatile, was freed and left a deposit so rich in silver that it was easily purified.

The applications of chemistry to mining processes are legion, but it is in other branches of industry that practical chemistry is now making its strides. The Standard Oil Company is a hardy exponent of the merits of industrial chemistry and has expert chemists constantly employed. As for that matter, so have all the great gas plants, coke plants, sugar refineries, starch factories, etc.

The original waste of the oil business was enormous; now it is next to nothing. Of course, the primary aim is the production of kerosene, but crude oil contains on the one side, oils lighter than kerosene, such as gasolene, naphtha, and, on the other side, products much heavier than kerosene, such as paraffin. At one time all of these by-products were waste; now every one of them is utilized.

By first distillation, the lighter oils are freed and collected. Then the kerosene is distilled, leaving a product that is worked over into hard paraffin and soft paraffin or vaseline. A heavy oil left after the collecting of the paraffin is used for lubricating and fuel oil, much of it being made into car and axle grease. After all these processes a solid mass of carbon is left in the retorts, and this is used to a considerable extent in making carbon sticks for electric light.

When one considers that until a few years ago every one of these products save kerosene was absolute waste, one can realize to some extent the place chemistry is taking in the industrial world.

The dairy business is one of the industries with which the chemist is busying himself, and the results so far have been most satisfactory, although a much broader field for the use of casein is prophesied. The large creameries, having turned out their cream and butter, were confronted by great quantities of skim milk for which there was apparently no use. Skim milk was a drug on the market, and in many cases was drained off into neighboring streams.

The chemist stepped in and changed all that. The milk is curdled with alkali and a dried product produced which is soluble in water. This casein has been used for paper sizing, kalsomining, etc., and successful experiments have been made with it in the manufacture of artificial foods. Moistened with water to a gelatinous consistency, put under a hydraulic press and then washed in acid, it forms a hard and indissoluble substance, of which buttons and similar articles are made. Chemists say that the casein powder, which is like a fine tasteless flour, may be substituted for milk in cooking, and has a great future in this respect.

Chemistry applied to the sugar industry has been invaluable; and, particularly in connection with the beet sugar manufacture, has recently effected a wonderful saving. The waste in the making of beet sugar was at first enormous, because the molasses was absolute waste. It contains products from the beet roots which give it a very bitter taste, and is also rich in an alkali which spoils its flavor. So, although more than one-half of the weight of the molasses was sugar, it was unavailable save for fermentation and alcohol.

Experiment proved that dry lime, mixed with the molasses, combined with the sugar, formed a product insoluble in water. Washing the molasses would then separate this product from all the other elements. The lime and sugar product being heated with carbonic acid, the lime combined with the carbon, forming an indissoluble product, and leaving the sugar free to be easily separated. By this process to-day 90 per cent. of the sugar is recovered from beet molasses and there is practically no molasses in the beet sugar factories.

In the manufacture of cane sugar the molasses is about as valuable as the amount of sugar contained in it would be, so there is no use for the process adopted in beet sugar making; but there is less weight of sugar in the molasses than there was formerly. This fact, and the fact that the molasses is now made in vacuum pans and can not be burned or thickened as it was in the old fashioned open pans, accounts for the fact that there is no more black molasses and no more black gingerbread such as mother used to make.

The glucose manufacturers have called in chemists, and found a new source of profit. The corn grain has, in addition to its starch product, a tiny germ in which lies its life principle. This germ was formerly crushed with the starch, separated and thrown aside as waste. Very lately it has been shown that this germ is rich in oil which can be utilized. The germ is now separated from the starch and crushed. The oil gathered finds a ready market, and within the last five years millions of dollars' worth of this oil has been exported to Europe, where all corn products are in great demand. After the oil is taken from the germ the gluten left in the cake is used for varnish; and the residue is used for cattle food.

The corn stalk also is ground and used for cattle food, but first the pith of the stalk is extracted and used for the lining of vessels, the theory being that if a fissure occurs in the framework of the vessel the pith lining, becoming wet, will swell and to some extent close the fissure.

The cottonseed oil industry has eliminated its waste almost entirely, although twenty years ago every part of the cottonseed save the oil was waste product. In the cottonseed oil factory now the seed is collected after coming through the cotton gin, and is first stripped of its lint, which is used in the manufacture of certain kinds of paper, felts, etc. Next the shell of the seed is removed and either ground for cattle food or used for fuel. In the latter case the ashes are collected for potash.

The kernel of the seed is ground and pressed to extract the oil, and the residue is used for cattle food. The oil in process of refining gives off a waste which enters into soap making and the making of oleomargarine.

Glycerin, used in such great quantities at present, was for years a waste product. All waste from fatty oils contains compounds of an acid with glycerin. The acid will combine with an alkali, leaving the glycerin in a watery solution, from which it is collected by evaporation and distillation. Immense quantities of this reclaimed waste product are used in the making of explosives.

When steel is melted in a Bessemer converter the phosphorus, which used to be a nuisance, is separated from the steel by the introduction of lime, with which the phosphorus combines readily. This phosphorus is then used as a fertilizer.

The slag from iron furnaces is converted into cement.

The tin is taken from old tin cans by chemical process and is used over and over again.

Even the acids used for chemical purposes are not allowed to outlive their usefulness with the accomplishment of their purpose. The Standard Oil Company formerly wasted great quantities of sulphuric acid after it had been used to remove the impurities from the oil. The acid was drained off into the river. Now it is used in a fertilizer particularly adapted to soil where phosphate rock must be dissolved.

Then again in certain great galvanizing works the iron was cleaned with sulphuric acid, which was then run into the nearest river. This method of disposing of the waste was forbidden. Chemists were consulted. The solution was made stronger so that it could be clarified and used repeatedly. Finally, when it could no longer be used for washing, it was evaporated, and the sulphate of iron extracted from it. This by-product proved so valuable that it is now the chief product of the works.

From the waste product of the wine industry chemists now obtain a crude cream of tartar, which, refined to a high degree, constitutes the acid principle of the best forms of baking powder.

The list might be protracted indefinitely and there seems to be in the industrial world to-day no product so utterly worthless that it may not at least find profitable incarnation in cattle food, fertilizer or glue.

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.
Reprints of important papers supplied to authors when request for the same accompanies the MS.
Terseness and perspicuity will be considered cardinal virtues.
It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.
Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.
Advertisements may be handed in as late as the 20th.
Requests for change of address should plainly state both the old and the new address.

NEW YORK, JULY, 1903

BLUNDERING WITH THE X-RAY.

WE consider Electricity, when applied to the treatment of human ailments, a strictly physiologic remedy. Hence, in conducting a "Journal of Physiologic Medicine," we are warranted in giving to every form of electro-therapeutics ample space and thorough consideration. We are also equally in duty bound to expose as far as feasible the much quackery that has followed in the wake of the discovery of Prof. Roentgen.

As was to be expected the application of this ray to the treatment of some intractable and malignant forms of disease was followed by enthusiastic exaggerations of its nature, scope and possibilities. The lay press took up the theme and indulged in all sorts of speculations, assertions and prophecies concerning the "new" agency. It was expected to revolutionize the practice of medicine, annihilate the Great White Plague, strangle carcinoma, make playthings of lupus, epithelioma and other superficial malignancies, and, in short, to "cure" all the old forms of chronic and incurable complaints, grow hair on hairless, and put brains in brainless heads, and to overwhelm poverty with prosperity.

The daily press took up the refrain and grew enthusiastic over the discovery—at last!—of the fabled Fountain. Some professional men lost their heads and lent their approval of the most extravagant predictions. Bald pates were to be rehabilitated and the performances of the Seven Sutherland Sisters eclipsed and made silly. In a word, "Electricity is life, and life can do everything."

On the part of the lay press these gushing outbursts were not to be wondered at, and the momentary exuberance of astonished physicians was, perhaps, excusable; but the latter should now be ready to drop expletives and turn their attention to experiments.

Nor is it sufficient for enthusiastic amateurs to buy some one of the many forms of "perfect X-ray apparatus," now being offered by scores of competing manufacturers, read the meager directions supplied and "set up" the treatment of all the serious maladies for which the ray has been recommended.

Much of the apparatus now in the market is crude and next to worthless. This is especially true of that which makes cheapness its principal merit. But there are even more cheap men trying to manipulate this imperfect apparatus as well as that which is competent. As a consequence the large number of reported failures, accidents and severe burnings is not to be wondered at. Rome was not built in a day, and the Roentgen ray can not be mastered while you wait.

THE INEVITABLE CHECKS.

THE law of compensation is as fundamental as it is inevitable. It antedates and underlies Creation itself.

The checks to excess of every kind, to deterioration, to injustice, cruelty and wrong, and even to disease, which is usually accepted as inherent, seem far away or impossible; but they exist, and will ultimately appear.

Beauty and Truth are perennial—can never be annihilated. Wrong is inherently ephemeral.

Truth and Right, and Justice have the logic of all the ages behind and beneath them. They may be eclipsed for ages, but will end at the top.

Falsehood and Wrong may flaunt for a day, but eventually hide themselves, discomfited and abashed.

Thus the most loathsome disease leaves its surviving victim immune to a further attack. Disease germs soon envelop themselves in a self-generated product that proves quickly fatal to all of their species. Congestion when prolonged results in inflammation, suppuration ensues and this incidentally destroys the obstruction and disperses the stagnation. The victims of small-pox or syphilis are generally immune to future infection.

In the commercial world the most arrogant monopoly ultimately cuts its own throat. An oppressive government, whether monarchy, empire or republic, generates a Revolution, and is overthrown by its own bayonets. The tyrant meets his inevitable assassin. The long summer drouth creates the conditions that eventuate in a long rain. The burning sands of the desert evolve plants that can survive without water, and save some rare specimens of the ovipara from the necessity and bother of hatching their own eggs.

All the rampant "reformers" ignore or deny this law. A recognition of it would save them all their ranting.

But things will not be hurried. Nature takes plenty of time in all her processes, and isn't a bit afraid the world or the race will get away from her!

"All things come to those who can wait."

* * *

A LESSON FROM THE LABORATORY.

The vendors of laxatives and eliminants are availing themselves of the following apt reflections as a preface to special claims for their various products:

It doesn't require much of an argument to show that good material must go into the twenty-story building if it is to be solid and secure.

Yet a great many people seem to think that it matters little what kind of material goes into the building of the human structure!

They offer the body thistles and ask it to give back figs.

They feed on thorns and expect to pick roses.

Later, they find they have sown indigestion and are reaping ptomains.

It's a wonderful laboratory, this human body. But it can't prevent the formation of deadly poisons within its very being.

Indeed, the alimentary tract may be regarded as one great laboratory for the manufacture of dangerous substances. "Biliousness" is a forcible illustration of the formation and the absorption of poisons, due largely to an excessive proteid diet. The nervous symptoms of the dyspeptic are often but the physiological demonstrations of putrefactive alkaloids.

Moral.—Don't neglect the eliminative exits. Keep the pores and the bowels open; by frequent baths and friction, by eating sensibly, especially plenty of juicy fruits, by copious water-drinking—not at table, but between meals, at rising and on going to bed. Make a daily fight for fresh air and plenty of it, and keep up the battle all night. Breathed-over air, contaminated air, kills more people every year than have all the wars of the ages. Fresh air is the most potent remedy in the world, and yet costs the least.

* * *

NEW CHEMICAL DEVELOPMENTS.

Professor and Madame Curie have announced a new elementary body which they call Polonium. Its source thus far is the metal Uranium, which contains infinitesimal quantities of the new and very wonderful element. It is represented to be more thinly distributed in Uranium than is the new gas Xenon, the most highly rarefied of all the known gases, in the atmosphere. Two tons of Uranium, at a cost of manipulation amounting to $75, yield but fifteen one hundredths of a grain of the precious material.

At first its discoverers were somewhat in doubt as to its being an elementary body, inclining to the belief that it was related to Bismuth, but Professor Marwald has satisfactorily demonstrated that it is really a primary element.

Its described properties are too wonderful to be comprehended or believed. With this mere speck of Polonium Prof. Markwald performed several scientific miracles in the presence of the assembled chemists at the recent Chemical Congress at Berlin. First, by means of it he rendered the air between the generator and receiver of an electrical machine a non-conductor of the sparks or flashes. Then, in a darkened room he placed pieces of barium, platinum and zincblende near the Polonium, which caused them all to glow with a bright greenish light.

Whether the new element will inaugurate a revolution in chemical relations remains to be seen. Perhaps it will merely contribute its additional item to the list of chemical wonders and scientific sensations, without being found of any avail in practical directions.

An important announcement has just come from Germany. It is to the effect that German electricians have succeeded in devising a method of producing a concentrated solution of ozone at a cost so moderate that it can be utilized by every municipality for sterilizing, purifying and oxygenating water for domestic use. The process is said to destroy every species of pathogenic germs and to greatly improve the quality of the ordinary waters in use by cities, as it appreciably increases its oxygen content. The required plant is said to be less expensive than even the use of sand filters as now practised in many places. The water to be sterilized is pumped through ozonizing towers, after passing which the most rigid tests detect no living germs of any kind. The city of Wiesbaden has inaugurated a plant which sterilizes about 21,000 gallons per hour.

If practical workings on a large scale prove all that they promise this is one of the most important of the practical electrical developments of this intensely electrical age. It will enable every city, and even villages of any size, to forever bar out epidemics of typhoid and other water-borne infections.

We shall watch the outcome of this announcement with great interest, since it promises more for the cause of Preventive Medicine than anything that has been brought to light during the past century.

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THE NEWEST ANTI-TUBERCULAR.

As we go to press some of the daily journals are agitating themselves and their invalid readers over the reports of Consul-General Mason, of Berlin, concerning some recent German experiments with a new treatment for tuberculosis. The remarkable results attained are said to be vouched for by "high scientific authority," which may mean less than it appears to. These experiments are being conducted at a clinic established in what is known as the Moabit quarter of Berlin.

The new remedy used is called "Sanosin," and is composed of a mixture of flowers of sulphur, powdered charcoal, and powdered leaves and essential oil, of the Australian Eucalyptus.

This mixture is placed in an earthen saucer and heated over a spirit lamp. The heat sublimes the sulphur and volatilizes the eucalyptus, and the resulting fumes are inhaled by the patient.

Of course, these remedies are not new, but are known as powerful and penetrating antiseptics.

Thus far the cases treated have been only those pronounced incurable by the experts of the Royal Hospital, which makes the reported results much more remarkable than when patients in all stages of the disease are treated.

Consul Mason states that of this alleged incurable class 120 cases have thus far been treated, of which number one-half have been discharged as "cured."

The names of Prof. Sommerfield and Dr. Danelius figure as having been active in conducting the experiments, and the foregoing statements are based on their reports, which were made public at a meeting of their professional brethren called for the purpose. The cases exhibited at this meeting were re-examined by the staff experts of the Royal Hospital, and in each case were reported to be free from all the symptoms which are deemed pathognomonic.

It is to be hoped further experiments will corroborate those already reported.

Next!

THE CAMPING OUTFIT.

As to camping paraphernalia, comfortable cots are a necessity; a stove which will neither balk nor smoke; good, strong hammocks, both for sleeping accommodation and for tree-shaded siestas; as few cooking utensils as possible; plenty of blankets, for in the woods or by the water the nights are cool; a roll of mosquito netting; an abundance of easily washed towels; a few camp-stools with backs; folding tables; several pieces of black rubber sheeting for a floor on wet days; candles and lanterns, matches packed in wide-mouthed fruit cans; a sharp hatchet, a can opener, and one flat agate plate; a knife, fork and teaspoon for each individual. A camp wardrobe for women might consist of three or four changes of underwear, both light and heavy, plenty of hosiery, high canvas shoes, rubbers, a sweater, a short walking skirt, a shirt waist or two—black china silk or pongee makes excellent waists—a soft felt hat and warm nightdresses. A small case containing various simple medicines, a hot water bag, absorbent cotton, mustard, adhesive plaster, witch hazel and mustard plasters, may be carried home unopened, only the possession of it gives a sense of security, should sickness ensue.—*Good Housekeeping.*

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Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

A RESUMÉ OF OXYGEN THERAPY.

Very few subjects in the line of medicine or surgery at the dawn of the 20th century, but have a more or less voluminous literature. Often it is both qualitative and quantitative, as the chemist would put it. Sometimes it is a mixture of the direct and diffuse, apt and abstruse, vigorous and valuable, or visionary and vaporous. However much it falls short in quality it is not apt to lack in volume.

But the therapy of the Oxygen group or series, including Ozone, Oxygen, Nitrogen Monoxid, Hydrogen Dioxid, with possibly a few oxygen-yielding drugs, may be said to be without a literature. This is the more remarkable on account of the universally admitted importance of the group to all successful systems of practice. We are appealing to air-cure—Oxygen-cure—when we insist upon better ventilation, movement-cure, massage, out-door exercise, and all the other measures that involve better breathing habits and pulmonary gymnastics. Seashore resorts and mountain heights are hunting grounds for invalids, and the game is *Oxygen*. The sea voyage is a search for Ozone, and antisepsis is chiefly a process of rapid oxygenation. To be sure, text-books on physiology and hygiene are indirectly full of the subject, but works on materia medica do not seem to consider it within their ken.

The first American paper on the subject of Oxygen in therapeutics of which we have any record [1] appeared thirty odd years ago, in the columns of a western medical journal. Prior to that a small volume,[2] published anonymously but ascribed to Macormack, recounted the interesting experiments of Hill and Beddoes, and in 1857 Birch of Manchester fathered a thin 12mo, giving the results of his enthusiastic trials of oxygen inhalations.[3]

Nearly a decade later the first French work appeared, giving much more detailed experiments and including a report on the medical and surgical uses of Hydrogen, Nitrogen and Carbon Dioxid.[4]

In 1888, Ehinger, of Quincy, issued a compend [5] of such fugitive papers and reports on the use of Oxygen in medicine as had appeared in current medical journals in this country, and a year later a translation of the more important portions of Demarquay's work was published by the F. A. Davis Company of Philadelphia. Fugitive articles have since appeared from time to time, but notwithstanding the fact that it is now very extensively, if not always intelligently, used by the general profession, no one has seen fit to undertake the preparation of a volume to meet the demand for a comprehensive and satisfactory resumé of the utility of this gas in therapeutics, from an up-to-date standpoint.

Nitrogen Monoxid, another interesting member of the Oxygen group, originally experimented with by Sir Humphrey Davy, and later, highly extolled as a remedial agent by Zeigler of Philadelphia, has been extensively exploited by advertising adventures, under the name of "Compound Oxygen," has been much used in admixture with common air, and with Oxygen, but is best known and most valuable in connection with its anesthetic properties.

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[1] "Superoxygenation as a Therapeutic Measure," *Chicago Medical Journal*, Feb. and March, 1869.

[2] "Pneuma-Therapia," London, 1856.

[3] "On Oxygen," Dr. S. B. Birch, London, 1857-8.

[4] "*Essai sur La Pneumatologie*," par J—N. Demarquay, Paris, 1866.

[5] "Oxygen as a Therapeutic Agent." Chicago, *The Medical Era*.

Hydrogen Dioxid, then and still improperly called "Peroxide of Hydrogen," began to receive attention in the early eighties. Nunn of Savannah was the pioneer to recommend its use in diphtheria and kindred infections. Richardson of London was an enthusiast in its praise, and today its use in surgery is probably more extensive than that of any other single antiseptic. Among detergents and antiseptics it is the cleanest of the clean, and with many of our best surgeons it has become indispensable, and has therefore taken its place with other standard pharmaceuticals. Even that staid and conservative old fossil, the U. S. Dispensatory, speaks in the highest terms of its many good qualities. Here are a few of its commendations.

"It is a very positive antiseptic which has been found to be extremely poisonous to pathogenic germs."

"Its liquid form makes it thoroughly adapted for putrid cavities and abscesses, which it will thoroughly cleanse."

"It has been used internally in low fevers and whooping cough and in various other diseases, and has been strongly lauded by Dr. John Day, and others, as a positive cure for diabetes."

There are a dozen other equally unequivocal and emphatic statements; but, taking the subject as a whole, its story has yet to be told: it is without a literature.

For example, recent advances and developments go to prove that however varied, multiform and important its uses, topically and medicinally, Hydrogen Dioxid derives all its activity and value from the oxygen it can be made to yield, and is destined to be valued far more highly as a source of this gas, in a free, pure and active condition. By some authors the gas derived from the decomposition of H_2O_2 is considered akin to if not identical with ozone.

Every one who has pursued the subject knows that the clinical exhibition of Oxygen has all along been seriously hampered by the faulty technique of the chemists and the bungling manipulations of the manufacturers. It is no wonder that the early investigators were often discouraged and well nigh baffled by the many obstacles that faced them at every step. One of the most trying of these hindrances has been the apparently unavoidable impurity of the gas as evolved by chemic art.

More than forty years ago a London firm announced a simple and economic process by which a supply of perfectly pure gas could be evolved by simply adding hot water to cobalt, prepared or modified in some peculiar way, the secret of which seems to have died with its inventors. The process discovered by Priestley and relied on by all the pioneers in this field—Lavoisier, Hill, Beddoes, Birch and their self-appointed administrators—that by means of the decomposition of potassic chlorate by heat, is still in vogue. It is very unsatisfactory, except for commercial gas, since, in spite of the many ingenious devices to prevent it, considerable traces of free chlorin and some sublimed crystals of undecomposed chlorate of potassium will pass over with the evolved gas. Besides, most brands of the potassic salt are tainted with foreign ingredients which further interfere with the quality of the Oxygen liberated. Boussingault's barium process, sometimes called the Brin process, from the fact that the Messrs. Brin Freres, of Paris, devised and patented an improved form of apparatus for utilizing it, is a great improvement over the others; but it requires expensive plants, and can never be economically availed of on a small scale. This French firm inaugurated a large plant in this city, ten or twelve years since, but an unfortunate explosion or two, of cylinders containing compressed gas, and a serious and fatal explosion at the factory caused the transportation companies to refuse to handle the product, and the company reluctantly withdrew from the American branch of its business. This was a serious misfortune to the profession of this country, and to community, since this process yields an unlimited supply of pure Oxygen, at less than one-half the cost of other methods. But to all these methods an objection is now being urged, by those who have given the subject most careful attention. They insist that artificially or chemically generated Oxygen invariably lacks one prime essential for the best therapeutic results, namely, *nascency*. Freshly evolved gas possesses, but almost instantly loses this peculiar condition of intenseness, which has been likened to and certainly responds to the tests for *Ozone*. Such a claim is neither far-fetched nor illogical, and is a consideration of more than passing moment. Atmospheric air confined for any length of time in a close compartment becomes so dead that even flies die in it. That Oxygen, under similar conditions deteriorates, is a legitimate corollary. Its mere contact with its iron containers undoubtedly demagnetizes and deteriorates it.

It would seem, then, that for purposes of the highest clinical efficiency some other source of procuring or a better method of storing the gas must be provided, a source and method that will yield a prompt and sufficient supply of pure and so-called nascent or intense gas. Compressed Oxygen in cylinders has its sphere, and whether effective or inert, will continue to be used for emergencies, for generating the calcium light and other commercial purposes, always in lieu of a better quality; but it is not nascent oxygen and therefore not ideal. The exacting practitioner will not be satisfied short of the best. Sometime since it was promised that the release of Liquid Air would yield pure Oxygen at almost no cost, which would have been a happy solution of the problem. At the present writing this anticipated source is a commercial failure.

Hydrogen Dioxid is a safe and available resource for the gas in limited quantities. It is easily obtainable, the apparatus required is simple and inexpensive, and the gas afforded while moderate in volume, is without possible contamination, and as thus evolved it is in its allotropic or active state.

But, after all, the principal source of the failure of Oxygen exhibitions to accomplish all the results theoretically and with apparent reasonableness hoped for and expected, lies in the fact that in a majority of cases there is no recognition of the necessity for creating a vital demand for an increment of the life-sustaining element. Its mere presence in the lungs is not sufficient. The blood and tissues must be in condition to appropriate and utilize it. In health this is normally accomplished by means of physical exercise. The athlete and mountain climber require more Oxygen and get it, because they put every tissue and cell in a fairly clamorous mood for it.

The passive and physically incapacitated patient can neither make the demand nor bring about the condition. The inhaling of no matter how liberal quantities of extra Oxygen by such patients does very little toward relieving the Oxygen famine of the organism, because of the lack of assimilating capacity or disposition. In these cases this capacity must be artificially aroused, the only methods available being by passive movements and massage. If these measures be neglected—and they usually are—the exhibition of the gas is apt to be pronounced a failure.

There are exceptions, occurring principally with patients suffering from suffocative diseases or accidents—pneumonia, asthma, asphyxia, whether from drowning, noxious gases, anesthetics or narcotics, in suspended animation, etc., etc.

In these cases life is often saved by a timely resort to Oxygen, and thousands of lives are lost by lack of it, or by neglect of its use in the nick of time.

In cases already moribund the frantic resort to the gas is sometimes justifiable but is generally a delusive farce.

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ON THE STERILIZATION OF MILK: ITS ADVANTAGES AND LIMITATIONS.*

By A. D. Blackader, B.A., M.D., M.R.C.S., Eng.,
Montreal.

In the infant, digestion appears to be in great part accomplished in the small intestine. There is no long delay in the stomach with prolonged exposure to an acid digestive medium as in the adult, but the milk, after an imperfect curdling, is quickly passed on to the duodenum. For this reason gastric digestion, the safeguard in older children and in adults against the entrance of disturbing micro-organisms into the alimentary tract, in infants affords but a feeble barrier. It is therefore conceded by all that one of the more important conditions in an infant's food is that it be perfectly sterile. The necessity for this is all the greater should the infant's food be more difficult of digestion, or involve a longer time in its digestion, than the natural aliment of the child.

Commercial cow's milk, acknowledged as our great substitute for maternal milk, is never absolutely sterile. In respect to the character and number of the micro-organisms it may contain, its condition is very variable. If carefully obtained under good hygienic conditions, filtered, aerated, and cooled rapidly, and afterward kept without much agitation at a temperature below 10° C., it will contain comparatively few bacteria. But if any of these conditions be unfulfilled, milk will be found to be contaminated by micro-organisms, the variety and number of which will vary in proportion as any of these several conditions have been departed from.

Again, milk obtained under unhygienic conditions, and of which the temperature has been allowed to rise as high or higher than 16° C. for any prolonged period, differs from milk obtained with hygienic precautions and kept at a continuously low temperature, not only in containing numberless bacteria, but also in containing spores and toxins; an important fact, in that we cannot destroy either spores or toxins (using the term toxins in its broad sense) without destroying the quality of the milk as a food.

The number of the different species of bacteria which may be present in milk is very great. Professor Conn (*Annual Report of the Storrs Agricultural Experiment Station,* 1899), writing upon the bacteriology of milk, gives a list of some 200 different species which he has isolated and grown during the course of the past few years. The majority of these, it is true, have been met with seldom, but many are very common. Of only the few can it be said that we have any definite notion of their action when introduced into the alimentary tract of the infant. Several forms are known to produce changes in the milk of a more or less deleterious character; others have distinctly pathogenic or putrefactive properties. To the pathogenic forms, it is unnecessary to, in this assembly, more than simply refer. The occasional presence in milk of the tubercle bacillus, the typhoid bacillus, and diphtheria bacillus, of the germs of scarlet fever and of the various forms of streptococci, is well recognized by all of you as a possible source of danger to your patients.

In reference to those forms which produce deleterious changes in the milk itself, I would quote the statements of H. L. Russell (*Twelfth Annual Report of the Agricultural Experiment Station, University of Wisconsin*), who says that he has isolated and studied fifteen forms which were frequently present; six of which were almost invariably present. Of these fifteen, he found that three produced lactic acid changes; seven produced no recognizable change in the milk; while five, owing to the rennet ferment elaborated by them, produced in a few days a slow coagulation of the casein which was subsequently dissolved by a second tryptic enzym.

In ordinary milk it is to be noted that

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* Read before the New York Academy of Medicine.—Republished from N. Y. Med. Journal.

while the majority of the individual micro-organisms present belong to the lactic-acid producing class, there are a number of forms which produce little or no acid change in the milk. Russell considers that the great majority of these gain access to the milk during milking, and are in great part derived from the excreta of the cow and stable filth. These extraneous species are either present in the form of spores, or in the form of bacteria apt to develop spores, and are thus liable to persist in sterilized milk. Among these forms Russell mentions the *Bacillus mesentericus vulgatus*, the common potato bacillus, as having been frequently isolated by him.

In an infant's food, with our present knowledge, all forms of bacteria are undesirable; many are poisonous. How shall we get rid of them? Bacteriologists have told us that almost all forms (the exceptions being forms not likely to appear in milk and cause trouble) are killed by raising the milk to a temperature of from 65° to 70° C. and maintaining it at this point for twenty minutes. When spores are developing, or have developed, however, this temperature will not destroy them, but neither are they killed by exposure to 100° C.

In the very admirable paper already referred to, Russell states that milk pasteurized at 70° C. contains so few bacteria that it may be said to be practically sterile. In 40 per cent. of samples he examined, the number of bacteria to the cubic centimetre after pasteuration at this temperature was less than 1,000. Cream, however, proved a more resistant medium, for in only 10 per cent. of the samples were the bacteria present in such small numbers. As the result of his experiments he concludes that an exposure of milk to a temperature of 70° C. for fifteen minutes, kills 99.83 per cent. of all the micro-organisms in full milk and 99.7 per cent. of the micro-organisms present in cream. The small percentage that remain represent the relative number of organisms that exist in a spore-bearing or latent stage and therefore are not killed by the heat used to effect the sterilization. This percentage, however, is subject to variation. If careless methods of milking prevail, and much foreign matter, such as dirt and particles of excreta, be allowed to gain access to the milk, the number of spores will be much increased and the percentage of bacteria remaining after pasteurization will be much larger. For a similar reason, namely, the development of spores, the older the milk the less successful is its pasteurization; a fact first observed by noting that the milk and cream pasteurized on a Monday, failed to keep as long as that prepared on other days in the week; a failure attributable to the milk pasteurized on that day being older by twenty-four or forty-eight hours than that used on other days.

From these carefully conducted experiments of Russell, we feel assured that pasteurization at 70° C. destroys all forms liable to produce extensive and rapid change in the composition of the milk. All the pathogenic and putrefactive germs are destroyed, as well as all the lactic-acid producing bacteria. And if milk thus pasteurized be immediately placed on ice, or kept at a temperature only slightly raised above *° C., it will remain sweet and maintain its freedom for many days from bacteria.

Freeman, as the result of his experiments, tells us that a plate planted from milk thus pasteurized and kept at the temperature of the laboratory, usually shows no growth in twenty-four hours. If, however, a cool temperature be not maintained in such milk, bacteria may develop and fermentations other than the lactic acid fermentation may take place, producing changes in the milk, in some cases with difficulty recognized, but which are liable to produce grave disturbances in the intestinal tract of the infant. The same, however, may also be said of milk sterilized at 100° C.

If milk subjected to a temperature of 70° C. is practically free from bacteria, is there any advantage in raising the milk to a higher temperature approaching or even quite up to that of the boiling point? One advantage there may be, that in careless or inexperienced hands the sterilization at 70°

C. may be incomplete; but this appears to me the only one, and I think there are many disadvantages.

Russell in his report for this year has, however, gone still further. Finding that in the pasteurization of milk at 70° C. the milk acquires a more or less scalded taste, and undoubtedly undergoes some chemical change, he tested the results obtained by pasteurization at still lower temperatures, and found that on exposure of the milk to a temperature of 60° C. (140° F.) for ten to fifteen minutes, from 98 to 99 per cent. of the bacteria were killed; such pathogenic forms as the cholera spirillum and the diphtheria and typhoid bacillus cannot withstand this temperature, while the lactic-acid producing species for the most part readily succumb. There appeared to be some doubt, however, whether the destruction of the tubercle bacillus was insured by this temperature. De Man, working under Foster, on cheesy matter obtained from the udder of the cow, found that it required one hour at 140° F. and fifteen minutes at 155° F. to destroy this bacillus. On the basis of this work, the latter temperature (155° F.) has until recently been regarded as the lowest that can be employed with safety for the sterilization of milk.

Theobald Smith, however, after many carefully conducted experiments (*Journal of Experimental Medicine,* Vol. iv, 1899, p. 217) has found that the tubercle bacillus, derived from bovine sources, is invariably killed in from fifteen to twenty minutes at a temperature of 60° C. Even after ten minutes' exposure the bacilli were for the most part dead.

Russell applied the results obtained by Smith to further experiments on milk, and found that when he heated tuberculous milk in a test tube to a temperature of 60° C. a pellicle formed on the surface of the milk consisting of fat globules, and coagulated proteids, which protects the tubercle bacilli to such an extent that not infrequent exposure in open vessels to this temperature for even an hour did not entirely destroy the germs. If, however, this pellicle as it forms, is broken up by stirring or agitation of the vessel, or if the sterilization is conducted in closed vessels, complete destruction of the bacillus quickly takes place at this temperature. Russell therefore very justly concludes that, as pasteurization at 60° C. kills from 98 to 99.8 per cent. of all the bacteria present in milk, including all pathogenic and putrefactive forms, a higher temperature is not desirable, if the slight increase in the efficiency of the sterilization is to be gained at the expense of other desirable qualities.

Milk raised to a temperature of 100° C. is markedly altered, both in taste and smell. Chemists inform us that definite chemical changes and modifications have occurred. The lactalbumin and globulin are to some extent coagulated, the lecithin, the nuclein, and the caseinogen are altered; the lactose is partially changed and the organic phosphorus is converted into an inorganic phosphate, which is probably without action in the system.

It would also appear that its digestibility by these changes is more or less interfered with, for, notwithstanding the general statement made by some writers that milk sterilized at 212° F. has appeared to be as digestible as milk pasteurized or unpasteurized, there is a very prevalent opinion among physicians to the contrary.

Among the more recent additions to our knowledge on the subject I would quote the statements of Wroblewski (*Oesterricher Chemiker-Zeitung,* 1898, No. 1), who points out that certain of the calcium salts, which in normal milk are in a soluble state, are made to enter into insoluble combinations by a high temperature. The part played by calcium salts in connection with those bodies, the ferments and their products, whose presence is a special feature of organic fluids, is being more and more fully recognized. As Duclaux (*Traite de microbiologie,* tome ii, 1899) has pointed out recently, ferments of many kinds are only effective in the presence of minute quantities of calcium magnesium or other mineral, the mineral varying with the special form of fermentation.

For the coagulation of blood, calcium must be present, and for the coagulation of milk in the stomach, calcium in a more or less free form must also be present. If the calcium salts in the stomach through heating undergo alteration so that they are rendered insoluble, then the coagulation of the caseinogen will be to that extent arrested or delayed. In corroboration of this it is found that outside of the body boiled milk undergoes coagulation by rennet only with much difficulty. Inasmuch as this primary coagulation in the stomach appears to be necessary for the normal digestion and absorption of milk into the system, it is certainly questionable whether boiled milk as a rule can be absorbed and assimilated as readily as milk which has not been brought to a temperature sufficient to change the condition of its calcium salts.

On the other hand, it is to be noted that this action may sometimes be of distinct advantage in those conditions of the infant's stomach where rennet action, either directly, or indirectly owing to the presence of fermenting bacteria, is so intense as to lead to the development of firm curds. Of the exact influence of this change in the milk on its digestibility in an infant's stomach, however, we must speak with hesitation. It is possible that the absorption of milk can occur without this preliminary curdling, but even if this be true, it is improbable that the absorption is as rapid and complete as in the case of unaltered milk.*

Another important change which is said to take place in all milk heated over 60° C. is the destruction of probably existing ferment-like bodies. The recent observations of Hericourt and Richet upon the good effects of raw meat juice in the treatment of tuberculous cases, and yet other observations of recent date, would appear to indicate that natural fluids unacted upon by heat, have certain properties which are absent from the same fluids after exposure to heat, and it is probable that unheated milk contains ferment-like bodies which, when absorbed, are of distinct value to the economy.

This probability that such ferment-like bodies are present in fresh milk has been strengthened by the investigations of Babcock and Russell (*Fourteenth Annual Report of the Wisconsin Experimental Station*), who found that milk obtained in a condition of perfect sterility undergoes a self-digestion owing to the presence of a trypsin readily destroyed by heat.

There are also observations pointing to the fact that immunity to disease may be conveyed through the mother's milk, and it is a matter of general knowledge that these immunity-conferring substances are destroyed by a heat of 60° C. or over. It may be that the absence of such substances in milk sterilized at high temperature, may render children fed exclusively on such a diet more liable than others to certain infections, leading to disturbances in general nutrition.

In this connection I would also call attention to an explanation suggested by Dr. Corlette (*British Medical Journal,* September 1, 1900, p. 573) for the induction of scorbutus in the infant by a dietary of sterilized milk. Physiologists tell us that citric acid is a normal constituent of both human and cow's milk to the extent of about 1 gramme in every litre. Goldner (*Landw. Versuchs. Stat.,* xxxv) states that it is present in greatest amount as a calcium salt, and to a small extent only as a potassium and magnesium salt; and Vaudin (*Jour. of Pharmacology,* xxx, 1894, p. 464) states that the calcium phosphate in milk is held in solution by the influence of these citrates. Calcium citrate, the most important, is comparatively insoluble in water, is much less soluble in hot than in cold water; it is also readily changed by heating into a still more insoluble form. It can readily be imagined, interpreting these facts in the light of Bunge's and Wroblewski's experiments, that in many cases the sterilization of milk at a temperature of 100° C. by alteration and perhaps precipitation of the citric salts gives rise to a deficiency in this very important ingredient of the infant's food.

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* Bunge quotes experiments showing that a mixture of the fats, sugars and proteids of milk, washed free of its salts, but to which salts are again artificially added, is incapable of supporting life in mice, which thrive on an unaltered milk—a fact which he thinks is attributable to this dissolution of the combination between the salts and the proteids interfering with the due assimilation of both. This assertion, however, has not yet been verified by other observers.

Milk, moreover, that has been pasteurized or sterilized cannot be kept long without undergoing changes of a more or less deleterious character. Russell, as I have already stated, recognizes the presence in pasteurized milk of bacteria which secrete rennet and subsequently a tryptic ferment. Lubbert of Breslau (*Zeit. f. Hygiene,* Bd. xxi, p. 450), also states that among the most frequent of the spore-bearing forms found in milk is a group that may be termed the hay or potato bacillus. This form peptonizes milk without producing in it changes recognizable to the eye. In many specimens of milk obtained in his own city he found a short, thick, spore-bearing, motile bacillus liquefying blood serum. Even after twelve days this bacillus had no action on the fat or the sugar of milk, but reduced the proteids in milk from 3 to under 1 per cent., with the formation of peptones.

Milk in which this bacillus had grown for twenty-four hours had no effect on adult animals when given by the mouth, but acted fatally on young animals. Studying the milk apart from the bacteria to determine what the toxic substance might be which was present, he found that the filtrate was harmless, and therefore concluded that the toxic substance was contained in the bodies of the bacilli. Sterilization at 100° C. at once removed the poisonous properties, but, and this is a point of interest, the spores persisted, and if the milk was still further kept it rapidly regained its poisonous properties as it again became abundantly inhabited by the same species.

It is quite possible therefore that milk sterilized at 60° or even 100° C. may, through the germination of these spore-bearing forms, obtain toxic properties different from those of ordinary sour milk and may thus become a source of grave trouble, if fed to the infant after it has been kept for any prolonged period.

To sum up this hurriedly prepared presentation of the subject, it may be said that milk sterilized by heat is altered to an extent varying according to the elevation of the temperature used in the sterilization and the duration of its exposure, in the following respects:

1. Its proteids are modified, and rendered apparently less digestible; but our knowledge on this subject is still indefinite and dependent chiefly on clinical experience; nothing has yet been proved by laboratory experiment.

2. The combination of its saline ingredients with the proteids, a combination which we must admit is not absolutely proved, but which appears to be extremely probable, is more or less broken and the salts assume a condition in which they are less readily absorbed.

3. Natural ferments whose presence in milk may with much probability be inferred, and which may materially assist its digestion in the infant's stomach, are destroyed.

4. An alteration takes place in the emulsion, normal to milk, which may also have a distinct effect in lessening the digestibility of cow's milk by the infant.

Again, it is extremely important that milk after sterilization should be kept at a continuously low temperature, and it is to be remembered that the employment of sterilized milk which has been kept for many days is not free from danger.

It appears to me therefore extremely desirable in infant feeding to use fresh milk drawn with such careful precautions as to be practically free from extraneous bacteria, and in which the lactic-acid producing bacteria are present in such small numbers as to induce no alterations of moment.

Such milk in my opinion is better not sterilized at all. But it is seldom our good fortune to be able to obtain such with the regularity necessary for the daily preparation of an infant's food. And when our supply cannot be depended upon, it appears the lesser of two evils to have the milk sterilized, but sterilized at the lowest efficient temperature, namely, 60° C., maintained for fifteen minutes.

Letters received from many of my friends in the American Pædiatric Society advise me that such is almost invariably the practice of the large majority of them.

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SOME GOOD EFFECTS OF A BAD HEREDITY.

Much has been written, from a medical standpoint, about heredity, but so generally, upon its unfavorable side, that, in imitation of the phraseology in which Shakespeare's Marc Antony commented upon the good and bad actions of men, it may be said the evil that results from heredity is always remembered; the good is too often forgotten.

There is always both a good and a bad side to every question or condition which confronts us, but there is neither pleasure nor profit in dwelling too much upon the pessimistic side of any of them.

It would be a wise policy to ignore, altogether, the so-called evils of life were it not that, when studied with a purely philosophical spirit, they become, to a degree which a superficial view fails to indicate, a source of much instruction and benefit.

No better illustration of this fact can be found than that afforded by the subject under discussion. By heredity, as is well understood, is meant the transmission of all of the mental and physical qualities and characteristics which we, as children, acquire from our parents. These, of course are both good and bad. We are pardonably proud of those that are good. We take pleasure in cultivating and developing them and are greatly compensated for so doing.

Our attitude toward those we call bad is usually either that of indifference or despair. We dare not cherish and cultivate them, because to do so only adds to their power to do us harm. But, as evil qualities, like weeds, thrive by neglect, indifference, eventually, results in conditions as harmful as those which are the direct consequences of cultivation.

Concerning the favorable influences of heredity, we shall have nothing to say. They need no representation or advocate; they speak for themselves. It may, however, be of interest to bring to the reader's attention a few mitigating and consoling facts about the evil side of heredity—facts which, when fully realized by its victims, will bring not only the hope, but the assurance, of escape from a life of increasing pain and disability with which they believe themselves threatened.

A bad heredity does not necessarily doom its subjects to certain death by the malevolent conditions which it imposes, nor is it the insurmountable obstacle to health which it is generally supposed to be. At the most it means only a *tendency* to disease—a tendency which, in most cases, requires years of time for its full development.

Pulmonary consumption, no matter how accentuated the heredity may be, seldom occurs before the prospective patient is 18 or 20 years of age; cancer, as a rule, does not make its appearance before the 40th milestone on the road of life has been reached; gout, liver and kidney diseases follow the same rule. In fact all diseases which affect the vital organs, and of which heredity is the dominant factor, seldom trouble those who have not passed the period of maturity. There is an evident desire on the part of Nature to delay, as long as possible, the punishment for all physical acts of disobedience which are justly chargeable to hereditary faults of either structure or function.

This leniency practically nullifies the evil tendencies and effects of heredity by giving its prospective victim timely warning of the threatened visitation and ample opportunity, if advantageously employed, to make use of such means as will successfully and permanently overcome all transmitted defects. Although too frequently overlooked, these two facts concerning the nature of inborn tendencies to disease, are of the greatest importance and practical significance. They not only rob affections of this class of their reputed danger, rendering them no more to be feared than disorders which have not been inherited, but they fully justify us in believing that, other things being equal, *a person born with a strong predisposition to any form of disease is the last person in the world who should ever become affected by it.*

To many this statement may, at first, seem overdrawn, but a little reflection will convince the most skeptical of its truth.

A single suppositious case will make the matter sufficiently clear.

Suppose a child, born of consumptive parents, exhibits, at 7 years of age, a narrow chest, small digestive organs, with weak digestive power, a pale, inactive skin, in short, is found to possess all of the physical and mental traits most favorable to the development of consumption.

Now it is evident to the most casual observer, that it would be difficult to find a subject which would more easily become a prey of the "feli destroyer" than the case here presented. Everything conspires to this end. His active brain, small, delicate muscles and restricted breathing capacity incline him to lead a sedentary or comparatively inactive life and to choose such pursuits and to follow, in his journey through life, the very path across which, although some distance in advance, heredity, the secret and trusted agent of consumption has dug a nicely concealed pit into which his victim will surely fall and from whose dark and deep recesses there is no possible escape.

Such is the fate to which every traveller is certainly doomed who ignorantly or blindly follows the path which heredity has prepared, and into which he as instinctively turns as does the infatuated moth to the alluring flame.

Millions have met an untimely and unwarranted death by journeying upon this fateful road because they were either not aware of the remorseless pitfall that lay before them or did not know any way to avoid it. Millions more will probably travel over the same road to meet the same sad fate although such sacrifices to ignorance are no longer necessary. Thanks to the labors and researches of preventive medicine we now know how the deadly pitfall may be avoided. *We have discovered that environment is stronger than heredity.*

It has been satisfactorily demonstrated that a rational course of living—one that is in conformity with the simple and well-known laws of hygiene—will not only wrest from Heredity the unconscious victim he has so confidently marked as his own, but will gradually induce such healthful changes in his physical condition, that, at the very period at which his death was foretold and expected he will be found to be stronger and more active than ever before.

What is true of consumption is, with few exceptions, true of *all* hereditary diseases. If, as we have seen, a bad heredity can be conquered by a good environment, the knowledge of this fact, can not be overestimated and, it should be proclaimed and disseminated, in every possible way, until there is no one who does not possess it. It will not only give comfort and courage to those handicapped by transmitted deficiencies, but its practical application will do more towards the banishment of disease and suffering than all other means combined.

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MECHANICAL SHOCK FATAL TO BACTERIA.

A CABLEGRAM to the N. Y. *Sun* from London says: "The *Lancet* prints a story today giving the results of interesting experiences in the destruction of bacteria in food and drink. It has been found that a mechanical shock has a germicidal effect.

"The *Lancet* cites a case where bacterial cultures were allowed to stand in the engine-room of a large manufactory where there were incessant vibrations from the strokes of an engine. The result was that, after four days, the germs were destroyed and did not appear when the water was set in a quiet place. In other experiments violent mechanical agitation had a similar effect.

"The discovery may be of great practical use, as most of the known germicides are more or less poisonous to the human organism, and therefore the destruction of bacteria by the administration of powerful antiseptics is not practicable."

The above cablegram, although of recent date, contains nothing really new. Its importance, however, deserves a wide hearing, and for this reason we reprint it. As far back as 1893 the late Dr. George H. Taylor, in writing upon the effects of vibratory action upon microbic elements in disease, said: "Mechanico-therapeutics promises to supply the long-sought remedy adapted to destroy bacilli and other microbes, not only without danger to the life of the patient, but with positive benefit. All microbe killers heretofore proposed, from bichloride to vegetable extracts, cause decided, often injurious, effects upon the vital cells of the organism. Vibratory motion simply induces increased oxidation of the least resisting constituents, including those microscopic, foreign and accidental. These statements are well proved by my own clinical experience and are well confirmed by that of others."

The results of the experiments of Mortimer Granville and his French colleagues, and, later, those of Charcot, in the treatment of nervous affections, are, so far as they go, confirmatory of the principle stated.

The reference hand-book of the medical sciences, in an article on the cultivation of micro-organisms, declares that successful experimental cultivation requires that the cultures be kept *perfectly quiet.*

"The facts cited have induced Dr. S. J. Mittger to investigate the effects of vibration upon the various kinds of bacilli in the most exhaustive way known to science. These experiments are now going on and as yet are only published in part. He destroys blood corpuscles by prolonged and very violent shaking, and the blood thereafter remains a long time without putrifying. He subjected cultures to the jarring of a building in which machinery was running and found the different orders of bacilli died in succession until all disappeared.

"His reasoning may be briefly stated. Vibration has for living matter the value of physical forces, and is comparable to heat, for instance. Different degrees produce different, even opposite, effects, according to the nature of the organism, each having its own heat scale. Some bacteria thrive at the freezing point; others grow best in air and body temperatures; some are comfortable at 100 to 160 degrees. Mittger quotes Howarth as authority for the statement that *all* germs in a mixture of undefined bacteria were thoroughly destroyed by being shaken 24 hours" (rate not stated).

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TREATMENT OF ECZEMA.

There are three indications in the management of eczema: (1) To protect the skin by dusting, ointments, pastes, and the like; (2) to reduce the infiltration and hypertrophy by the use of tar, sulphur, chrysarobin, etc.; (3) to cauterize the acute inflammatory spots (vesicles, abrasions, etc.). To fulfil this last indication we need a remedy which shall do no harm while accomplishing its direct purpose, and such an agent we possess in lenigallol, according to Dr. E. Kromayer. Lenigallol, the triacetate of pyrogallic acid, is a white, crystalline powder, insoluble in water. Brought in contact with the inflamed skin it splits up, liberating pyrogallic acid, to which the effect is due. The author has used lenigallol for about two and a half years. The advantages of this remedy over pyrogallic acid and other substances employed in the treatment of eczema are as follows: It is insoluble and remains unchanged in contact with *normal* skin; in contact with the inflamed skin, pyrogallic acid is slowly liberated; wherever the epidermis is lost (vesicles, pustules, crusts, abrasions) the change of lenigallol into pyrogallic acid is more rapid, thus regulating and confining the cauterization to such spots as stand in particular need of it. Besides, the drug is non-poisonous. These theoretical considerations have been completely borne out by the author's practical experience. He employs lenigallol in three combinations:

1.	Lenigallol	20 parts
	Zinc Ointment	80 parts
2.	Lenigallol	10 parts
	Oil Cade	5 parts
3.	Zinc Ointment	85 parts
	Lenigallol	10 parts
	Wilkinson's Ointment	90 parts

(Wilkinson's ointment has the following composition: Oil of cade, 10 parts; precipitated sulphur, 20 parts; green soap, 5 parts; zinc ointment, 65 parts.)

No. 1 is used at the beginning of treatment. The paste is thickly applied and the dressing changed twice daily. The favorable results appear very soon, and many cases can be cured by this paste alone. Where deeper infiltration has supervened, paste No. 2 is used as an adjuvant. Should this prove too mild, as in cases of advanced infiltration, the combination of lenigallol with Wilkinson's ointment (No. 3) is recommended by the author as the very best remedy we possess.—*Exchange.*

* * *

A HOT SUMMER IS HEALTHFUL.

A LEADING physician of an eastern city, who was formerly an army surgeon, speaking from the experience of a long and large practice, says that an abnormally cool summer is no more to be desired than an excessively hot one. In his opinion a moderately warm summer results in a higher average of the public health. One of his theories in this connection is of more than passing interest, as it concerns a matter over which the individual has control—perspiration. It is his opinion that in a cool summer the average individual does not perspire sufficiently, and on this account often faces the winter with a system actually not in as good condition as if the summer had been excessively warm.

The function of perspiration is to clear the system of effete matter. It is, perhaps, second only to the kidneys as a cleansing agent. Once the pores of the skin are clogged the whole load of poisonous and effete matter is forced upon the kidneys and intestinal organs. Often these are unable to take care of the matter and serious results follow.

In a hot summer, Nature takes matters into her own hands. Humanity perspires in spite of itself. In this way an incalculable amount of waste is thrown out through the skin.

"You cannot perspire too freely so long as it is a natural perspiration, one not caused by disease," said the surgeon already quoted. "The freer the perspiration the less work for the kidneys."

It follows then that in a cool summer it is advisable to induce perspiration through the medium of vigorous exercise. Granted that it is vastly more comfortable to lounge in shady retreats and watch someone else chase tennis balls under a broiling sun or tramp enthusiastically over the golf links, nevertheless their reward will come later. They will enter the winter, with its more or less necessary confinement, better physically, better mentally.—*Good Housekeeping.*

* * *

A RESTAURANT run by the city has for sixty years existed in Grenoble, France. Meals are supplied at cost, and the food is excellent. For 1½d.—3 cents—a patron can fill himself with bread and soup, and for 6d.—12 cents—he is furnished with a four-course dinner.

[And this is in Europe where bread is so dear and flesh and blood so cheap.—Ed. GAZETTE.]

FOREIGN CORRESPONDENCE.

By a Special Correspondent of the Dietetic and Hygienic Gazette.

London, May 16, 1903.

In spite of the great size of London and the congested traffic in the streets it is comparatively a clean city. With the exception of a few streets, which have been transformed into markets where fish, meat, etc., are sold, a condition that has been brought about by changes in the character of the population in that part of the city, and more especially noted for their extreme poverty, the rest of the city is in a good hygienic condition.

I hope it may be interesting to the readers of the Gazette, especially those who have not had the opportunity of observing for themselves, to know how this is being accomplished. Very few streets in London have stone pavement; most of them have asphalt, which in itself makes it easier to keep the streets clean. I think there is a more decided congestion of vehicles in the streets of London than anywhere else in the world. Motor or steam cars are mighty few in number, and the public conveyances consist of omnibuses drawn of course by horses, and of horse cars, in addition to cabs, which are very numerous, and charge very reasonable rates, so that they are used a great deal. The freight wagons must not be forgotten. From this it can be seen that the excrementation of horses must be enormous; yet the sweepers who are in the streets with broom and shovel constantly remove the dirt. The scavengers are not known as "white wings," as in New York, but are dressed in ordinary laboring suits; nevertheless they manage to keep the streets clean.

On the edges of the sidewalks at convenient distances are placed bins, about five feet in height, one foot in length, and half a foot in width, which open at the top by means of sliding lids, and at the back under the bottom, they have small receptacles. The animal excrement or droppings are stored away in these bins, from which the accumulations are constantly being collected in separate wagons and used as fertilizer. The waste paper is kept in the receptacles underneath, which is also disposed of in a useful way.

But what may interest New Yorkers most is the carting away and disposal of refuse from houses. Every New Yorker knows that in spite of skillful dodging one is apt to have in New York his face and clothes covered with the contents of an ash can in broad daylight. Such a thing does not happen in London. First, the refuse from the houses is removed before eight o'clock in the morning. There are no ash cans or any cans on the sidewalks, but they are kept in special closets in the yards. In some houses the refuse is gathered in closets constructed in the walls under the stairs leading to the basement, just in front of the houses. The scavengers come once or twice a week and cart it away. In houses where there are no basements the refuse is kept hidden away in other parts of the house, suitable for such purposes. But the abomination of rows of cans standing on the sidewalks and giving forth nauseating, sickening stenches as in New York, does not exist in London. The scavengers in London have really very little to collect from the houses, as the London housewives seem to be very thrifty at least as far as fuel is concerned. Everything combustible is usually burned by the London housewife in her kitchen stove. She puts into her refuse closet only such things as ashes or potato peelings, but whatever burns she puts into her kitchen stove.

The ash carts in London are covered with lids, and when you pass an ash cart you can not see its contents nor do you feel them as you do in New York.

In addition to the bins for the refuse of animals as described above, there are shallower and wider bins wherein fine gravel and sand are kept for use in the streets as the occasion may demand. The streets of London are sprinkled frequently with a solution of permanganate of potash. The sprinkling wagons consist practically of waterproof boxes on wheels, which open at the top by lids, and have their sprinkling apparatus at the back. Water is drawn into them by means of a hose connected with a street hydrant; then the driver puts some of the permanganate of potash out of a paper into the water, and it is thus used for sprinkling the streets.

I have noticed solutions of permanganate of potash kept in water closets in many private houses, and frequent use made of it for the purposes of disinfecting the closet.

And this brings me to speak of another excellent thing existing in London, namely, the public lavatories. Nowhere in the world, to the best of my knowledge, are they so clean, and so properly situated. They are underground, and thus do not interfere with traffic on the streets, and are not offensive in any way. They have glass roofs and thus have abundant light, and they are also well ventilated. The urinals are of porcelain, are very low, so as to accommodate a very short man or a child, and are automatically washed by an almost continuous stream of water. There are of course separate lavatories for ladies. The closets are also perfectly clean, and have an abundance of water. In addition there are a few rooms with running hot and cold water, and also **towels,** and for two or three cents one can make use of such a room for the purpose of washing and dressing. This is a great boon to many people engaged in dirty work, who live in the suburbs. It saves them the discomfort and humiliation of travelling unwashed and dirty in crowded vehicles, to the great annoyance of the other passengers.

On the whole, my impression is that the public sanitary arrangement in London stands very high; in fact, I had not expected it to be so high.

The medical and the pharmaceutical profession in London, and in England in general, seem to be in nearly as disorganized and hopeless a condition as in New York, or the United States. There are a great number of bodies having the right to grant licenses to practise medicine. The medical council, as I was informed by its secretary, exercises simply a control over them so as to keep up a certain standard, but it does not issue licenses. The standard and requirements of the various bodies vary greatly. Only those holding an Italian diploma are entitled to practise in England, as there is a reciprocity agreement with Italy that English diplomas should be recognized in Italy and vice versa. The same with respect to some of the English colonies, but Canadian practitioners must obtain an English diploma in order to practise in England, as there is no understanding between England and Canada in the licensing of doctors.

The pharmaceutical profession is in a similar state. There are chemists, and there are druggists. The former are licensed and have a right to compound prescriptions; the latter have no license, have no right to compound prescriptions, but they can sell all non-poisonous drugs. And in case of a firm or company, it is permitted to employ a licensed chemist to compound prescriptions, and thus run a complete pharmacy. There is consequently keen competition between drug store companies keeping licensed chemists and chemists having their own shops; as well as between different members of each of these classes, so that the lot of the chemist is not a very enviable one.

The doctors in the poorer neighborhoods in London have their little pharmacies in their offices, and give their own drugs, seldom sending a patient with a prescription to a chemist. That is probably the reason why some of the English novelists frequently refer to doctors as apothecaries.

The fee of a London doctor varies from a shilling in the poor neighborhoods up to many guineas in the aristocratic sections.

E. PALIER, M.D.

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SUGGESTIONS.

ONE of our recent writers of fiction says, "Food is the one god and the stomach is its only prophet."

WHEN you are "off your pegs" and don't know whether to eat or fast, give the stomach the benefit of the doubt: don't eat.

A GLIMPSE OF THE CARIBBEAN ISLANDS.

By a Special Correspondent of the DIETETIC AND HYGIENIC GAZETTE.

A FEW weeks' cruise among the islands of the Caribbean Sea gives one a strong impression regarding the important possibilities of several of them as resorts for the weak and invalided, especially during our northern winter. From my own observation of their sanitary conditions, however, I am satisfied that there is abundant room for improvement in most of them as concerns drainage, refuse disposal and water distribution, to say nothing of the manner in which a large class of their population live. Owing to the long continued depression in what had been for many years the chief industry of the islands, sugar production, the colored and negro masses have lacked the stimulating effect of a trade that was profitable to its operators and provided steady employment in the field and mill. Hence as would be reasonably expected the visitor on shore generally notes a careless, indifferent, go-as-you-please disposition among the people who make up the grand bulk of the population. With a climate always warm and moist and a soil that produces in rich abundance the food essentials of a tropical region, in addition to the lack of stimulus already noted, it is not strange that the masses are apathetic and dull.

In Barbados the situation appears to be better. There we find a larger proportion of English whites in the towns and an air of comparative activity in business operations. It should be mentioned, however, that the late quarantine on account of small-pox, had continued so long, nearly one year, that merchants were beginning to feel discouraged enough to complain of the measure as a sort of persecution that under the warrant of authority appeared to aim at the ruin of what enterprise remained in the British West Indies. Happily the restriction to free commercial interchange was withdrawn a little before the full year had been completed. Barbados has a fine water supply, which can be urged against the ordinary pretexts for an unsanitary condition in a community of mixed races. To be sure the density of population is great—scarcely exceeded in any province of China, being about 1,200 to the square mile. Yet with a government that may exercise a masterful control in any department on occasion, the employment of the prime cleansing "element" of nature to rid, for the most part, that small area of country of the common disease-producing agents would seem comparatively easy. At least this might be done in Georgetown, the principal city and port, and communication with the outer world, so essential to the business activity of the people, be maintained.

There is a close similarity between the negro and mixed races inhabiting the several islands of the Caribbean, as might be expected from the similarity of their early occupation as colonies. The traveler finds some change, to be sure, according as it may be an English, a French or a Danish island that he visits, but the changes concern mainly the white residents; the negro and colored people exhibit mannerisms and characteristics greatly similar and speak a patois that is much the same. Those living in the port towns know enough English to be communicative, although some exception to this might be noted in the case of Guadaloupe and Martinique that have been for so many generations entirely controlled by the French as to have become pretty thoroughly "Frenchified." On account of the great preponderance of the negro element the visitor who goes to the Caribbean with the intention of remaining awhile should take the fact into consideration that it is with the colored people he will have most to do, and he will be likely to find peculiarities of conduct in their relations with the whites that may not strike him altogether pleasantly. Yet the good-natured and tactful visitor will have little trouble with them. These people are generally poor, most of them very poor, and regarding the man from the United States much as the natives of the East Mediterranean countries, as a rich "nabob" of prodigal munificence, he will meet in most of the islands with much importunity and annoyance for charity. The worst expressions of this sort I met with on the English islands; on the Danish there was very little assertion of mendicancy.

The mixed and colored people do not impress one as being on the whole physically strong and vigorous while the unmixed black appears the stronger. Pretty much all the severe labor is done by the negro, women taking part with the men on the plantations, and at the coal stations they join in loading vessels. Unfortunately what they earn, and the wages are low enough, is carelessly spent on indulgences more harmful that salutary.

For a winter tour and with the purpose of seeking a change of temperature and climate that may prove helpful to the worn and depressed organism it seems to me that five or more weeks spent among these islands affords some exceptional advantages. As the temperature in January and February approximates that of our northern June one is comfortable enough so far as concerns warmth while on the steamer, but there are days when the sun reinforced by the southern wind makes much exercise on shore rather overheating. My cruise was made in February and March, when for the most part days spent on shore were decidedly hot, although at night there was a breeze that made sleep refreshing.

The roads are fairly good and made with a considerable curvature to provide for drainage at the curbs. In the business districts of most of the islands some attention is given to keeping the streets in good order. The same may be said of the quarters where the white residents are housed, but where the "natives" live conditions are left mainly to the management of Nature. Hence there is room for the application of the methods of modern hygiene. Many of the islands have cases of leprosy, but you are not likely to meet one in public as provision is made for their sequestration in hospitals, each island having its independent establishment for their care. In fact the visitor, if not a physician, may go through the islands in the ordinary fashion and not know that a leper exists among them. I was pleased with what I saw of St. Kitts, St. Croix and Antigua, and brief surveys of their interior country appeared promising for such short stays that might be made by those seeking a climate positively warm during the continuance of our American winter. One should be ready to live much as the natives do on fruits and vegetables and cereals, with which their markets are sufficiently supplied to furnish a good variety. A little shop in St. Croix where I dropped in one day to get a glass of limejuiceade had a package or two of "Force" on its shelves, certainly intimating a tendency on the part of the shopkeeper to keep up with the dietetic march of the day.

H. S. Drayton, M.D.

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Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. PATCHEN, M.D.

HOW THE MIND RULES THE BODY.

UPON this topic J. Lincoln Brooks, in *Success,* says: "Thought is being recognized more and more at its proper value in the work of the world, material and moral. By people of views varying greatly in detail, the power of thought is stated to be almost omnipotent in human affairs. Practical demonstrations of seemingly marvelous results are convincing unthinking and material minds. Scientific experiments, instead of destroying the claims of the thinkers, substantiate them, and give scientific explanations."

THE INFLUENCE OF MIND OVER MUSCLE.

Professor W. G. Anderson, of Yale University, lately succeeded in practically weighing the result of a thought's action. A student was placed on a "muscle-bed," poised on a balance so that the center of gravity of his body was exactly over its center. When he was set to solving mathematical problems, the increased weight of blood at his head changed his center of gravity and caused an immediate dip of the balance to that side. Repeating the multiplication table of nines caused greater displacement than repeating the table of fives, and, in general, that displacement grew greater with greater intensity of thought. Carrying the experiment further, the experimenter had the student imagine himself going through leg gymnastics. As he performed the feats mentally, one by one, the blood flowed to the limbs in sufficient quantities to tip the balance according to the movement thought of. By purely mental action the center of gravity of the body was shifted four inches, or as much as by raising the doubled arms above the shoulders. These experiments were repeated on a large number of students with the same results.

To test still further the mastering influence of mind over muscle, the strength of the right and the left arms of eleven young men was registered. The average strength of the right arms was one hundred and eleven pounds; of the left arms, ninety-seven pounds. The men practiced special exercises with the right hand only for one week. Tests of both arms were again made, and, while the average strength of the right arm had increased six pounds, that of the unexercised left arm had increased seven pounds. This showed clearly that the brain action connected with the gymnastics developed not only the muscles put in action, but also other muscles controlled by the same portion of the brain. This could only come about by sending blood and nervous force to the proper parts by purely mental action. Professor Anderson says of the results:

"I can prove by my muscle-bed that the important thing in all exercises is the mental effort put forth. I can lie down on this muscle-bed and think of a jig, and, though apparently my feet do not move, and actually the muscles are not active, the muscle-bed sinks toward my feet, showing that there has been a flow of blood toward the muscles, and that, if I did dance a jig, the muscles would be well supplied with blood under this mental stimulus."

BODILY EXERCISE WITHOUT THOUGHT IS OF LITTLE USE.

Sandow has long taught that bodily exercise without proper thought would do little to develop muscles, and that a very little exercise, with the mind directing it, will practically rebuild the body. Certain professors of physical culture are selling this knowledge for good prices. Professor Anderson's experiments demonstrate the truth of these statements, and, further, that exercise involving competition and lively interest in games does far more good than merely mechanical movements, performed without interest in gymnasiums. He says that walking is poor exercise for brain workers, as it is so purely automatic that it does not call the blood from congested brain centers, which go on solving intellectual problems. A run, a brisk walk, with a definite object necessitating the thought of speed, will send the blood to the legs and build them up.

Before these experiments at Yale University, Professor Elmer Gates, at Washington, had claimed that he was able, by thinking intently of one of his hands, when it was immersed in a basin full of water, and willing that the blood should flow there, to make the water overflow. Thus the amount of extra blood sent to the hands could be measured, since it corresponded to the overflow of water.

Recent experiments on dogs by the European scientist, Pawlow, have proved conclusively that secretion of the gastric juice in the stomach does not, as long supposed, take place automatically when saliva is secreted or when food enters the stomach. On the contrary, it is secreted when a dog is made to anticipate that it is to be fed with a much-loved food, as raw meat, even though that meat is not given it, or, if given, is not allowed to pass into the stomach, but drops out of the œsophagus by a slit made for that purpose. All kinds of mechanical irritation did not avail to cause a flow of gastric juice unless there was excited an idea of pleasure in eating. If the pneumogastric nerve was severed, even this anticipated gastronomic pleasure, or the actual passage of the loved meat through the severed œsophagus did not cause gastric secretion. The part of the mind in what has been called mere mechanical or physical functions has been thus shown. The psychological side of digestion, as of every other manifestation in the body, is the more important.

The experiments of Professor Anderson with his muscle-bed are full of scientific interest. They are of interest to every one, because they demonstrate in the most positive and convincing manner the fact which many are inclined to deny, that the mind really controls and directs every physical change which occurs within the body.

They are of especial interest to physicians by showing them how necessary it is, regardless of whatever else may be necessary, not only to secure the mental co-operation of the patient in all things done by others for his recovery, but to direct his mind and keep it operative in channels which will compel it to contribute directly to his own cure.

Moreover, to all practitioners of kinesitherapy they afford a satisfactory explanation of the superior curative value of duplicated or resistive movements which are so successfully used in the treatment of many chronic forms of disease.

It has long been known that in the treatment of certain diseases "movements" or curative exercises in which the patient is allowed or made to participate are much more effective than when the same movements are made by the operator, with the patient remaining passive. In the light which these experiments shed the reason why duplicated movements are so markedly helpful becomes very plain. It is because not only the mind of the patient, but, also, that of the operator, is concentrated upon that limited portion of the body which the movement includes, stimulating all of the physiological processes within this area, and calls forth in this manner all of the curative power which the system is capable of exerting.

ATHLETICS A CAUSE OF EARLY DEATH.

"THE devotee of college athletics is doomed to a premature death; he must fall behind in his studies or else work under such a strain that mental, as well as physical, ruin is imminent; his own moral character, as well as that of his non-athletic associates, must suffer and the moral and intellectual tone of his college must be lowered or at least seriously imperilled by college athletics," is the indictment against college amateur athletics raised by Dr. James Grant Gilchrist, Professor of Surgery in the Homœopathic College of the University of Iowa.

Dr. Gilchrist makes his arraignment of the evils of college athletics after considerable opportunity to become acquainted with them. He is an M. A. and M. D. of the University of Pennsylvania, and has been at Iowa since 1882.

"If a man intends to devote his life to athletic pursuits," says Dr. Gilchrist, "and keeps up his training, as he must, he will damage himself beyond repair, it is true, but the catastrophe will be somewhat delayed. He will have acquired a large heart and blood vessels, to say nothing of lungs out of proportion to any legitimate need of his body. Sooner or later, aneurism, valvular disease of the heart, pulmonary diseases of various kinds, brain lesions, hernia and other conditions are sure to appear, and his death in all respects will be a premature one.

"But if he trains for three months in a year, as our students do, trains as a prizefighter or professional athlete would, dropping it all at once at the close of the season, returning to his former habits of life for nine months, his life is in peril. This is in no sense theoretical. It is hard fact with ample proof at hand. How often have we seen young men trained in this manner taken ill with an ailment which the untrained man would take lightly, go down to death with scarcely a pretense of resistance! Such work is not training, it is suicide."

Dr. Gilchrist takes no account of the risk of serious injury occurring on the field, holding it unimportant, compared with other aspects of football, track athletics, baseball and other forms of college sport. He holds that college athletics are not amateur because of the hiring of coaches, the period of training, and the taking of gate money at the games. He objects to putting the athletes under the stern rules of the coach, with the strict rule of diet, sleeping and living, to the necessity of spending the evenings in study when they should be given to recreation, and to the teaching of the tricks and ways of the professional received from the coach.

On the taking of gate-money he says: "It is professional, according to present standards, for an individual to receive pay for individual service in any manner whatever. It is not amateurism if an organized body does so. Would pure amateurism yield a season's profits of $10,000? Can a purely amateur organization get into debt of $5,000?"

Not only do the baneful effects of college athletics reach the men, but Dr. Gilchrist holds that the co-eds are corrupted by its insidious influence. "We not only notice a serious moral decadence in the athlete himself," says Prof. Gilchrist, "but to an even greater degree in the whole student body, or a sufficient number to give character to the whole; they gradually acquire a careless dress, slang and vulgar speech, and coarseness of manners.

"This is bad enough in the case of young men, but when, as in co-educational colleges, the young women show similar characteristics, the aspect is deplorable. I have seen, and doubt not other colleges can duplicate it, young men at the theater in the evening, in the presence of ladies, in sweaters; have seen them walking the streets in the same attire, with young women, and smoking a pipe!"

"*Mens sana in corpore sano,* has been the excuse for all the absurdities and incongruities connected with what we call athletics," says Prof. Gilchrist. "In the majority of instances, it may be safely assumed, the average man will be found to enjoy a fair state of equilibrium between brain and muscle; in other words, has a physiology that to him, as an individual, is normal, in the sense that it is sufficient and suitable for the purpose of his life. Certainly the body needs care, but training is abuse, not care."

As an example of the stress and danger to which the participant in athletics is subjected, Dr. Gilchrist takes a cross-country run held at the University last fall. "Late in the afternoon of an autumn day, chilly at the start and momentarily becoming more so as the sun declined, a crowd of young men in scanty dress, bare-headed, and many of them bare-armed, came running by my house, only half a dozen blocks from the starting point. Many of them dropped out at this point and lay panting on the grass in dripping perspiration. There was something of a mile further to run, and doubtless the road was liberally lined with those who dropped out. After a time, a stream of walkers came back, in the same half-clad condition, exhausted and breathless. Later the survivors of the run appeared, the best of them nearly done up, with an expression on their faces it was not good to see. Would not a mere walk, in suitable dress, have given much better results? But then a walk would not have had the spirit of competition in it, and in so far would fail in satisfying the canons of athleticism.

"The function of a coach seems to be, not to make a man more useful to society, not to give him that much-talked-of 'sound body,' but to fit him to win some kind of a game of competition, and then to send him out into the world, if he should last to get into active life, prematurely old, with a diminished chance of resistance against the physical emergencies of life, and vastly more vulnerable to morbific agencies; in fact, a piece of damaged machinery. A man is as old as his arteries. Three months of college athletic training gets more wear out of a man's heart and arteries than twice as many years of ordinary life would require. Is it worth it?"

Director Stag, the Chicago University coach, in an answer to the statement made by Dr. James G. Gilchrist, Professor of Surgery in the Homœopathic Medical College of the University of Iowa, said in part:

"The statements of Dr. Gilchrist are not founded on facts. Mr. Gilchrist says that the men ought to have recreation in the evening, when they are forced to study on account of their devotion to athletics during the afternoon.

"I think that the men get their recreation in the afternoon. They do not consider their training in the light of work, but, on the contrary, they train because of the interest they have in athletics and on account of the enjoyment they receive from athletics.

"If this were not true the men would not come out and train as faithfully as they do. I do not believe that there is a baseball player, football player or track athlete who does not enjoy the branch of athletics in which he takes part.

"I do not believe that there is any doubt that the men are benefited both physically and morally by their participation in athletics.

"As to the charges that the work is too strenuous for college men, and that their health is impaired and their lives are shortened by their heavy work, it may be true in the case of heavy weight lifters, but not with regard to college men, who are always well trained and not allowed to compete unless in perfect physical condition.

"There have been charges made that the four-mile boat races were the most injurious to the athletes on account of the strain on their arteries. This has been refuted by actual experience in England, where boat racing has been carried on for years.

"Men who have participated in boat races in the English universities when young men have lived to be old men, and when examined in their old age have been found to be healthy men.

"College sports are not professional. The men take part in athletics on account of their interest in them, not for any hope of reward."—*Body and Mind.*

IMPORTANT IF TRUE.

We find the following in a health publication hailing from the West:

"A well-known authority says 'seven-tenths of all consumptive cases are the consequence of an imperfect aeration of the lungs.' He would have been right had he said that seven-tenths of all consumptive cases are the result of *pinched* condition of the *nerves* which control the action of the *diaphragm,* thereby making it *impossible* to *breathe deeply.* Sandow, the *strong man,* is said to have a chest expansion of 14 inches and a chest measurement of 61 inches. With all this wonderful development his lung capacity in cubic inches is smaller by at least 100 cubic inches than it should be. What does this show? With all his systematic training why has this man failed in the development of his *respiratory organs?* Answer—Sandow has *pinched nerves,* and unless the *pressure is removed* Mr. Sandow had better take good care of his little lungs. This case clearly shows that *great chest expansion* is no indication of good strong lungs."

While it is undoubtedly true that consumption is due to an insufficient supply of oxygen, which, of course, can be furnished only by the lungs, it is difficult to understand how Sandow can suffer from lack of oxygen if he possesses a chest expansion of 14 inches. What prevents the lungs from expanding, too?

Sandow ought to know about this. Will some one kindly mention the matter to him?

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MODERN BOY LARGER.

A writer in the *Westminster Review* makes a comparison of the physique of the public school boy of to-day with his predecessor, taking Marlborough and Rugby as examples. The Marlborough measurements were taken from 1874 to 1901, and those of Rugby from 1879 to 1901.

The advantage is shown to be with the modern boy. At Marlborough a boy of thirteen to-day weighs on an average of 5½ pounds more and is two inches taller than the boy of thirteen in 1874. An eighteen-year-old boy to-day is 4½ pounds heavier and nine-tenths of an inch taller. The Rugby boy of thirteen of to-day is 2½ inches taller and rather over 6 pounds heavier than the thirteen-year-old boy of 1879. The seventeen-year-old boy shows an increase in height of nine-tenths of an inch, but a diminution of one pound in weight.

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EXERCISING ALMOST NAKED IN THE OPEN AIR.

A Berlin doctor has discovered that the best possible cure for a great class of diseases is going without clothes. Among the widely different diseases that are cured by this treatment are nervous troubles, kidney, liver, stomach and skin diseases. An institution called the *Fresh Air Club,* which partakes of the nature of a sanitarium and a club, has been established for this treatment near Berlin and enjoys a tremendous popularity. It is filled with bankers, government officials, business men and men about town, all seeking to regain the health and strength they have injured by overwork and foolish living.

The patients live almost completely without clothes, both indoors and out. The only covering they usually wear is a small pair of bathing trunks. If they feel cold because they are out of condition, they may slip on a bath robe, but they throw this off as soon as they are able to do so. As a rule they wear nothing on their feet, because it is of the greatest importance, in the view of the doctors, that the feet should be completely exposed to the air and earth. The patients also go without hats for the same reason, unless baldness or some other cause make it really disagreeable for them to remain uncovered. Then they wear a straw hat.

One of the methods of this health emporium is to make the patients live as cheerfully and congenially together as possible. They are encouraged to play all kinds of games and to amuse themselves in every possible way. The usual painful restrictions of sanitarium life are done away with. None of the men are so ill that they are unfit to take part in the amusements of the place. Persons needing hospital treatment are not received here.

The sanitarium is situated on a very healthy, sandy soil which dries up within half an hour after the heaviest rainfall. The building is an extremely simple wooden one. The patients live plainly, but have all they want to eat. They have roast beef and beer regularly for dinner.

One of the exercises which is specially recommended by the doctors is the playing of wind instruments. There is a very excellent band formed among the patients. Perhaps one of the most curious sights to be witnessed anywhere in the civilized world to-day is a large assemblage of stout, naked Germans seated in the open air and playing vigorously upon cornets, flutes, piccolos, clarionets, French horns, English horns, bassoons and other wind instruments.

The playing of these instruments is, first of all, beneficial to the lungs. The playing of them in pure open air is, of course, an entirely different thing from playing them in closed places. The invigoration of the lungs has a beneficial effect on all the organs of the body. The benefit is felt particularly by the organs which are in close functional relation with them, the heart and the other organs of the circulation; furthermore by the nutritive fluids of the body, the blood and the lymph, and finally by the vaso-motor and, in general, the nervous system through the increased nutriment which by force of the intensified circulation and the actinic rays of the sunlight exerts a greater efficiency in all its various controlling relations to the general mechanism of the body.—*Mind and Body.*

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A STUDY OF WRINKLES.

Dr. Felix Regnault, in *La Nature,* Paris.

Translated for *Public Opinion.*

Is there any way in which we can avoid old age, or at least retard its appearance, and particularly can one prevent the wrinkles which constitute the mask of senility? Nothing is more simple than to produce this effect, if we believe the charlatans who spread forth their advertisements in the newspapers, although the treatises on medicine are mute in reference to this matter. There is, however, a method which can be applied with success in the treatment of wrinkles, but before speaking of it we will explain the cause of wrinkles, for from the genesis of a disease the treatment proceeds.

The muscles of the face are the essential agent of wrinkles. Look at a person afflicted with facial paralysis. The wrinkles are effaced on the diseased side, but they remain on the other, so that the person has in reality two profiles—one which recalls the youth of the person, the other his or her real age. We hear it stated that death beautifies a person; but this is due to the fact that death relaxes the muscles of the face, makes the wrinkles disappear, and gives peace to the harassed face.

The muscles, in fact, are in a state of permanent contraction, or, according to the scientific expression, they are in a state of tonicity. The intensity of this contraction varies greatly with different persons, a simple external excitation sufficing to augment it. This may be seen in the case of sailors exposed to the weather, who permanently contract the muscles which encircle the eyes in order to protect these organs. Most frequently, however, the excitation is of cerebral origin, and we know that the passions are manifested externally by contraction of the muscles of the face, which produces furrows and transitory foldings of the skin. The latter become premature wrinkles with those persons whose anxieties are of long duration, for in place of contracting momentarily the muscles maintain an exaggerated tonicity. Thus constant reflection forms profound, vertical wrinkles between the two eyebrows, because of the habitual contraction of the upper palpebral muscles; and the spiteful and aggressive person has at the base of the nose small, horizontal wrinkles formed by the pyramidal muscles. On the other hand, those who are depressed create nasolabial furrows, pull them down with the lips, and make them permanent.

Wrinkles, then, are formed by the muscles, as these latter are inserted at their two extremities into the skin of the face, and when they contract they draw together their inserted points, thus folding the skin. When, on the contrary, the muscles are inserted into the bones (and here we have to do with non-expressive muscles), they form, in the case of old people, projections similar to cords, which raise the skin. Similarly to the muscles, fat distends the skin, and when the latter has lost its elasticity the cheeks hang down, and with those who are emaciated the inner skin follows all the contours of the organs resting beneath.

If the muscles only produce wrinkles in persons who are advanced in age, it is because the skin is senile. In youth, the skin being perfectly elastic, returns to its original condition after being stretched. In fact, we all possess to a greater or less degree the power of the "elastic-skin man," who is able to stretch the skin of his body to a very great extent. With old people the skin loses its elasticity and hangs slack, the muscles acting on it as on an inert cloth. Further, the conjunctive and elastic tissues undergo a degeneration; they possess new and abnormal affinities for the basic and acid colors, which shows that they proceed toward colloid degeneration. The degree of these alterations is not, however, in relation to the age of the person, for the skin of a person of forty years of age is sometimes in a more degenerate condition than that of a person of sixty, and whereas this may depend on exposure, it is chiefly due to temperament.

A curious fact is that certain races are entirely free from wrinkles, the Indians of South America having no affliction of this kind. Again, certain persons have innumerable wrinkles which appear prematurely, this being a special and imperfectly known disease which is described under the name of gerontiasis.

The formation of wrinkles is, then, due to the state of the skin and to the extent of the muscular tonicity. This double cause gives us the double indication which should guide in the treatment. To prevent alterations of the skin one should see that its functions are perfect and that its working condition is all that it should be, this being obtained by douches, massages, and by sweating obtained by physical exercises. It should further be remembered that good general hygiene will retard the aging of the skin in the same way that it prevents the aging of all of the organs. On the other hand, one should diminish as much as possible the contraction of the muscles of the face, should avoid extreme feelings, and should, above all, seek calmness and serenity, for old age is chiefly due to the passions.

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SUNBATHS IN THE TREATMENT OF TUBERCULOUS JOINTS.

MILLIOZ (*These de Lyon,* 1899), unlike Finsen, of Copenhagen, who used the ultraviolet rays of the spectrum in the treatment of lupus, has employed all the rays of sunlight to act on tuberculous joints. He disapproves of the systematic fixation of the limb in which the tuberculous lesion is situated. The patient is placed on a suitable couch in the sunniest part of the garden or other open place, with the affected joint fully exposed to the rays of sunshine. To protect the head of the patient, some sort of sunshade may be improvised. If the upper limb is the seat of the disease, the patient may preferably be allowed to walk about in the garden. The duration of the sun bath should be several hours a day. During the intervals the joint is covered with wool, and rather firmly bandaged. Sometimes after the first or second bath the joint becomes more painful, but this soon passes awav in most cases. If it should continue, it may be necessary to intermit the treatment for several days. Rapid pigmentation of the skin by the sun's rays has been noticed to coincide with comparatively quick recovery. The joints are said to become smaller, the skin healthier looking, the discharges, if such be present, less purulent, and the fistulæ close. Such results, however, may require months of treatment.—*British Med. Journal.*

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FOOD SUPPLIES FOR CAMPING.

WHEN one turns to food supplies, let a woman who is a good housewife and skilled provider plan the list and do the marketing. She will be sure to tuck away in corners things which taste like very luxuries amid the rougher fare of the woods. The list she would compile may be something like the following: a twenty-four-pound sack of pastry flour, and of corn meal, which will provide a two weeks' bread supply, beans, sugar, baking powder, coffee, salt codfish, bacon and dried beef in glass jars, rice, evaporated apricots, prunes, chocolate, a package of small sausage, edam, pineapple or cream cheese in porcelain jars, pickles, olives, raisins, crackers, pilot bread. pancake flour, frying oil, some of the gelatine preparations ready to make into jelly, maple sugar to be converted into syrup, cornstarch for simple puddings, extract of beef, a jar of mayonnaise, salt pork, horse-radish or some relish, vinegar, pepper, salt, mustard, macaroni, and an assortment of tinned meats, fruits, soups and jams. In this list there are no potatoes, apples, milk, butter, eggs, or onions; such supplies may frequently be purchased at the nearest farmhouse. If this is an impossibility, provide condensed milk; the unsweetened kind is the best, as it may be used for all sorts of cooking. Then you can have evaporated apples and butter packed in wide-mouthed fruit cans. Dried potatoes, egg powder and onion extract can be purchased at any house dealing in campers' supplies.—*Good Housekeeping.*

HIS UNLUCKY DAY.

POSSIBLY some of our readers may have an unlucky day, but few can equal the experience of Mr. George White, who for many years has been in the employment of a leading publishing firm in London. On April 14, 1875, he fell over a pole and broke his left arm. Exactly a year afterward he broke his left leg. On April 14, 1877, he fell from a platform and smashed his wrist, and was obliged to have an arm amputated. On April 14, 1887, he escaped, but his wife had a serious accident. On April 14, 1889, he slipped and broke three ribs. Then his employers told him to take that date as a holiday. But in 1891 he dreamed of a coming accident, so the manager advised him to come to work on April 14 and dispel the superstition. He came, and fell downstairs and broke his remaining arm.—*London Chronicle.*

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THE LIFE OF THE HEART.

A MINNEAPOLIS correspondent, Mr. T. W. Bennett, informs us that the note in our issue of December 18, regarding the continued beating of a turtle's heart after removal from the body, caused him no surprise, because he has noticed the same phenomenon when placing a turtle's heart in a dish of warm water. "All that the heart needs is to be kept warm and moist, and it will pulsate for two or three days. Turtles' hearts frozen over night will resume their pulsations when placed in warm water and thawed out."—*Public Opinion.*

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A COLORED woman threw the odds and ends of medicine left after her husband's death into the fire. The explosion that followed carried the stove through one of the windows. "Mos' pow'ful movin' medsin I eveh saw'd," said she. "No wondah the ole man gone died."

THE MOSQUITO CONGRESS.

I'm the very first mosquito of the year—
(Hear my song.)
I am singing tenor solos in your ear
Good and strong.
I was bred on the Patapsco,
And I'll see where morning naps go—
What care I where all your slaps go!
Hear my song,
O hear my song,
I'm the very first mosquito of the year.

I'm the very first mosquito of the year—
(Hear my song.)
But I will not be the last one, never fear,
You're all wrong.
For in April there'll be millions,
And in May there will be billions,
And by August undecillions—
Hear my song,
My high G song.
I'm the very first mosquito of the year.

I'm the very first mosquito of the year—
(Hear my song.)
Thought I'd beat your bed's mosquito cover here—
Was I wrong?
Always aim to strike the city
Founders Day, though the committee
Doesn't like my little ditty—
Hear my song,
My bugle song.
I'm the very first mosquito of the year.

When Lord Baltimore first landed I was here—
With my song;
And I did my cornet solo in his ear
Good and strong.
Never saw a fellow swear so,
Fan the air and tear his hair so;
He declared he couldn't bear so
Bad a song—
My madd'ning song.
For I was the first mosquito of that year.

Yes, I'm the first mosquito of the year—
(Hear my song.)
And I am happier than you are 'cause I'm here
With my gong.
You may bar me, smudge and smoke me,
You may slap me, you may poke me,
You may curse me or may joke me—
But my song,
Goes right along.
I'm the very first mosquito of the year.

They have found a bug to kill me, so I hear—
(Hear my song.)
But it cannot with my pleasure interfere
Very long.
It will be the same old story
When I tune my bugle gory,
With my song,
My killing song.
For I am the first mosquito of the year.

—*Baltimore American.*

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Trained Nurse

The Health Department of New York has assigned nurses to thirty-nine public schools in Manhattan. Necessary supplies have been furnished to the schools, and principals have been invited to give the nurses as much assistance as possible. The nurses are to examine the children as to cleanliness, and to instruct the mothers at their homes how to treat all cases of sickness. The schools selected are in the congested districts of the east and west sides of Manhattan, and the authorities are warmly in favor of the arrangement.

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MARRYING, THE COOKING QUESTION AND A FEW ODD REFLECTIONS OF A BACHELOR.

Recently an English Archbishop, who must evidently be suffering in the throes of burnt potatoes, thin coffee, watery soup and sour, heavy biscuits, sent out an imploring letter addressed to fashionable female academies that they add a cuisine department to their system of education.

Heaven bless this man who has had courage enough to groan! May the plaint swell until every "family man" rebels against the cooking that has spoiled the great Anglo-Saxon digestion! May every "family man" persist in going to the nearest restaurant for his meals, or continue to be surly, irritable and out-of-sorts after each evening's dinner until more appetizing, wholesome cooking greets his weary home-coming!

A few young ladies there are who have mastered the science and art of cooking, and who are geniuses of stew pots and copper kettles; but, and it is a deplorable fact, the vast majority of to-day shun the commonplace of housework, and, if they must be about, prefer the banging and wrecking of typewriters, or the filling of account books with long rows of dull, meaningless figures. This work is far more apt to at least, keep their hands *soft* and *snowy* than the drudgery of the household. The kitchen is inclined to call forth effort, and brings a flushed face and soiled hands. The girl who spends her time there is called "a good girl," by mothers of other daughters, but whose own must be *refined* and *genteel,* and shine in stylish society.

Poor Archbishop! Poor any married man. That is the pity of it all. Young women must be ladies—refined—genteel! And that is the fault which not only makes many a married man miserable and goads him to repeat "how mother used to make it," but it is also the cause of many a heartache on the part of many a young helpless wife who may make every effort to please her husband, but alas the effort is guided by the hurriedly bought cook book and not backed by the practical experience of years of actual cooking.

When women have learned the great lesson that man is the creature of his stomach she will have learned the fundamental law of everlasting married happiness.

"Feed a husband to his liking and you can wear a new bonnet every time the sun shines," is a bit of human philosophy, as wise as it is trite, for a woman to study.

A fit of good or bad humor in a man is generally traceable to a well or badly digested meal. A surly answer, or the refusal to liquidate a milliner's bill may generally be traced to sodden biscuits or a tough leg of spring (?) chicken.

Half the dark, tragical poets who see ravens in the "midnight dreary" would have been sound and snoring in their beds had they had a wife who could cook a wholesome, healthful meal.

Good cooking is a greater ally and a more legitimate one in a woman's diplomatic wiles to gain her ends than the undiplomatic efforts and domestic blunders many of them make at the present day.

A skilful household general can easily make an attack and win the ultimate request of a much-needed five-dollar bill, a favorite book, some trifles for the children, or even a fresh supply of sugar, which husbands generally insist is being wasted, when the subject, after the good meal served, is in a peaceful and satisfied state of mind.

A woman need not however expend all her energy in cooking each dinner the "very best" she may know how. That is not the part of diplomacy. She should wait until some object comes along, as the opera, or anything else on which she has staked her whole heart and soul. Then let her bring out every effort and, behold! the rare "dinner de resistance." With this her heart's desire has already been three-quarters granted, by the delighted and over-tickled husband.

Let women heed this. Let young girls heed this. It is the rock bottom philosophy of married life and all health and happiness, since all the tribulations and sorrows spring from this source of cooking and digestion.

JOSEPHINE H. KRAFT.

254 Cooper St., Brooklyn.

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NURSES AND SETTLEMENTS.

"From magnanimity, all fear above;
From nobler recompense, above applause,
Which owes to man's short outlook all its charm."

IN America the connection between the nurse and the Settlement is much closer than in England; indeed, many nurses may never have come into contact with Settlement work here. A Settlement is an institution intended to gulf the chasm between rich and poor—between East and West. The first Settlement started in London was Toynbee Hall, Whitechapel, and the idea was that the young university man was to live there, and to try and pass on to the working man some of the culture gained at college. The success of Toynbee Hall was great, and the women promptly started a Settlement in Southwark on similar lines, while Mrs. Barnett at Whitechapel added women's work to Toynbee Hall. And then Settlements developed widely; they sprang up at Liverpool, Glasgow, and elsewhere, and the discontented young lady learned to wear off her *ennui* by going and dwelling amongst the poor and telling them how uncultured and unthrifty they were; and then after a few months returning in virtuous exultation to the luxuries of the West End, and imagining a halo about her head.

But in America the Settlements are run more on business lines, and probably the most noticeable and the most original is the Nurses' Settlement in Henry Street, New York. It was founded by Miss Lilian D. Wald, who, after graduating as a nurse, went to live on the East Side with a friend, and give her services to the poor. They found the demand for their aid greater than they could supply and they persuaded other nurses to join them, and then a gentleman came forward and supplied these devoted women with a house in which to dwell. And with the house the work expanded, a little garden at the back became a playground for the children, a room in the basement became a dispensary, and a big dining-room was used at night for the meetings of boys' clubs, for lectures and so on. The Settlement began by what we know as "district nursing," and then grew into the more varied labors common to English Settlements. There is but little room to tell here how a country house for the ailing and the children, how a school house and other branches were added on; but President Roosevelt and Mr. Jacob Riis know all about the Nurses' Settlement and have learnt many lessons from it. There they heard of the need of playgrounds for the children, there they heard of the defective eyesight in the schools. Of all the numerous citizens of New York who have done good work, we defy any to show a record to beat that of Miss Lilian D. Wald. She lived amongst the people and got to know their needs; she had the gentle sympathy of a cultured lady and the power of repression of a trained nurse; she was a connecting link between the voiceless poor and the powerful senator, and now her works arise and call her blessed. And this is the lesson the Settlements are now learning in England. They might learn the way out of their troubles by a visit to the Nurses' Settlement at New York, where the help is ready, the service is practical, the sympathy is great. There is no condescension, no airing of superiority, no more scolding of the poor for their poverty. Instead there is the daily service, the constant realization of the evils and meeting them, not by grumbling at those who are the slaves of their environment, but by passing the knowledge gained on to the lawmakers, so that the environment may be amended. Only practical and sympathetic persons can do this, and therefore we believe that if the London Settlements, instead of their interminable lectures and priggish visitors in silks and feathers, would number more nurses amongst their members, they would pass through the present season of depression and come to the fulfilment of their aims.—*The Hospital.*

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LECTURES ON MEDICAL AND SURGICAL NURSING.

By John Hopkins, F.R.C.S.

DISEASES OF THE NERVOUS SYSTEM.

Cerebral Haemorrhage. — A diseased blood-vessel running through the brain gives way, and blood is poured out into the brain-substance. If the vessel be very small the effect upon the patient will be correspondingly slight; it may amount to little more than a feeling of giddiness. If the vessel be more considerable in size the blood may be in such quantity as to compress the brain and suspend its functions in great part, so that the patient becomes deeply comatose. Coma is a condition of profound unconsciousness in which the breathing is deep and noisy, or stertorous, as it is called, and no movement can be excited in the patient. Hæmorrhage into the brain producing this condition is known as apoplexy. There are all degrees of loss of function between the two extremes of momentary giddiness and coma, according to the degree of compression. Patients generally recover when the hæmorrhage is moderate in amount, but there is permanent loss of function in proportion to the degree of damage to the brain-substance. Hemiplegia is the resulting condition generally. Sometimes there is loss of feeling, but this is nearly always less than the paralysis of movement. This is because the blood-vessels usually give way within the big bundle of motor fibres that carry motor impulses from the convolutions down through the spinal cord to the muscles of the limbs. Cerebral hæmorrhage sometimes causes convulsions. If in the course of your duties in the wards a patient falls in a fit, and you know him to be an epileptic, you proceed at once to deal with the case; but do not let this lead you to assume that when a man has a convulsive seizure it must necessarily be epilepsy. If there be any doubt at all in your mind—if, for instance, the patient is not an epileptic—it becomes your duty to summon medical aid. In dealing with a case of this kind pending the medical officer's arrival do as little as possible to disturb the patient. Place him in a comfortable position and put a pillow under his head, but do not move him further than this, and refrain from all attempts to arouse him, for they only tend to increase the hæmorrhage. The hemiplegia which results is always greater at first than it eventually proves. When the pressure upon the undamaged brain-fibres is removed by the absorption of the blood, these regain their functions, and there is partial recovery. There is generally some stiffness of the muscles at first, called "early rigidity," which passes off after irritation of the brain ceases; and later there is a return of this, called "late rigidity," which causes the limbs to be bent more and more as years elapse, and there is a tendency to fœtor in the palm and between the fingers of the rigidly flexed palm, so that this requires special attention.

Hemiplegic cases tend to move towards the side of the bed that is on their unparalyzed side and may fall out, so they should be placed more to the other side. When sensation is partly lost there is in some cases as much tendency to acute bed-sore as there is in paraplegics, of which you will hear something presently. It is on the paralyzed side that the bed-sore forms quickest, and this is the side they are inclined to lie upon. In course of time there is rigid acute flexion; the muscles may waste without any relaxation of the limbs which have become fixed by fibrous bands, and sores are to be feared on all points of pressure, especially as the patient has acquired the habit of lying in one particular posture, all others causing pain and discomfort. The incontinence, which is the necessary accompaniment of this condition, soddens the skin, which needs to be frequently attended to in the manner that you have learned to deal with it practically in the wards.

Paraplegia.—Hæmorrhage into the substance of the spinal cord may be the cause of paralysis of both lower limbs, and, if it occurs in the neck region, of the upper limbs as well; but paraplegia generally is the result of a fractured spine; of angular curvature, in which abscess forms and compresses the cord; of some morbid growth, or transverse myelitis, in which a short length of the cord is inflamed in its whole breadth. In paraplegia there is loss of sensation as of movement, and loss of power over the bladder and rectum, loss of power to void and to retain. At first there is generally retention of urine, and as there is loss of sensation at the same time the patient has no conscious desire to pass urine. It is in these cases of paraplegia where sometimes the retention comes on unperceived by the patient, and may be one of the early signs of the onset of the paralysis, that the active observation of the nurse may prove of real value. If the patient has not passed urine as usual, her suspicion should be at once aroused. When the urine has been allowed to accumulate in the bladder, it forms a decided prominence above the pubes. Here, again, in washing the patient, this can hardly escape an observant eye. In time the bladder begins to overflow; there is incontinence from retention. At frequent intervals there is a small quantity of urine voided, or there is a constant dribble. The sheet requires frequent changing. A nurse should not rest contented as to her patient's condition when the dry sheets have been scarcely put on before they require to be renewed until the doctor has satisfied himself as to the cause of it. The certain result of urine being allowed to distend the bladder for any considerable time will be cystitis. Within a day or two blood will begin to flow pretty freely from the congested lining of the bladder, and the urine will become ammoniacal. Such a condition adds very materially to the danger to which the patient is already exposed.

It is in paraplegia there is such danger of acute bed-sore forming. Having loss of sensation they have no desire for change of posture as healthy people have; no feeling of numbness, pins-and-needles, or aching. Consequently they do not ask for a change of posture, and being powerless they cannot move themselves if they have the desire. Besides that, their own efforts to move may be deterred by pain. So they lie continuously in one position, the weight of their own bodies keeping the capillaries empty in the soft parts rested upon down to the bone. Press one hand upon the back of the other, and see how pale it is on suddenly removing it. If that were kept up for hours the flesh would slough. The part turns purple and then black, and a deep slough of all tissues down to the bone takes place, from the absence of blood to keep the part alive. This may happen within a few hours of the onset of paralysis. One night's neglect to keep the patient moved from one posture to another is enough to cause the worst of acute bed-sores. On the other hand, careful nurses can keep a paraplegic alive for years. Bed-sores form on any point of pressure, the sacrum, the hips, and the heels being the parts most frequently affected. Superficial bed-sores due to wet beds, neglect to change sheets, bread-crumbs, rucks in the sheets, want of due cleanliness and attention to the skin, are specially liable to occur in people who are paralyzed and helpless.

In paraplegia, when there is complete loss of voluntary power to move the limbs, they are involuntarily moved by a reflex action through the spinal cord. When the limb is laid hold of it is drawn up. This must not be mistaken for wilfulness on the part of the patient. They are quite unable to prevent the limb behaving in this way. Unless this is understood, people are liable to think that the patient is shamming.

Spinal Sclerosis.—When the posterior columns of the spinal cord are hardened or sclerosed by the growth of fibrous tissue the nerve fibres are at the same time destroyed. These are sensory columns of the cord. At the same time there is degeneration of the sensory nerves that pass [illegible]o the part of the cord sclerosed, and there is loss of sensation. Lightning pains shoot through the limbs, the patient does not know when he is moving his limbs, and they are consequently thrown about as he walks. Hence it is known as locomotor ataxia. He is subject to gastric crises in which there is violent vomiting which may last for a day or two; laryngeal crises, in which he has spasm of the muscles of the larynx, accompanied by a hacking cough and difficulty of inspiration; bladder crises, in which he suffers from retention of urine; and intestinal crises, with diarrhœa. The pains and the various crises can be cut short by medication. The retention of urine requires the use of a catheter. It is in this disease that Charcot's joints, already described, are found, and so-called spontaneous fractures occur.

Spastic Paralysis.—In this there is sclerosis of the lateral columns of the spinal cord. Attempts to move the limbs excite rigidity of the muscles, which cause the patient to drag the toes upon the ground. In advanced cases the spasm in the muscles that draw the thighs together causes the limbs to press so tightly together that deep-pressure sores down to the bone occur on the inside of the limbs.—*The Hospital.*

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Book Reviews.

Sanity of Mind, a Study of its Conditions and of the Means to its Development and Preservation. By David F. Lincoln, M.D. New York and London, G. P. Putnam's Sons.

This volume, which might be called a scientific waif, has been available to the public for a couple of years, and yet we venture the statement that not one in one hundred thousand who ought to make its suggestions a serious study has ever heard the name of it. That it has not been appreciated is, for a wonder, the clinching evidence of its need. This may seem anomalous, but it isn't.

We are all insane, that is, barring so small a minority of the race that it is not worth taking into the account. And we have good reason for our mental unsoundness. Those of us who have not inherited it have had a thousand opportunities and plenty of occasion for acquiring it. There's our headlong way of living, studying, thinking; our befuddling mania for narcotics and nostrums, our feverish social travesties. We no longer hitch our wagons to a star but to a roaring, reckless and explosive automobile, and then we are not satisfied unless it goes—going—gone at the velocity of a sputtering shell from a Krupp gun.

That any of us escape some recognized form of insanity can only be accounted for by the fact that the jurors in each case are themselves a "little off," and hence either ignore or extenuate the symptoms and evidence.

Think of the crazy literature we devour! The crazier it is the sooner it reaches its million mark.

Think of the crazy cramming of our children in the public schools and colleges—with the recent saving grace of football and other fracture-box athletics!

A still more serious complication is criminality. Mental aberration is behind most of the crimes and pretty much all the vice and depravity of the race. Eliminating the paranoiacs would make professional thieves a lonesome class and would eventually relegate the electric chair and the gallows to the lumber rooms of the legal antiquarians.

All of which is intended to show the need of works like this of Dr. Lincoln.

It is a sensible without being a sensational effort to place this important subject before the thinking public in a practically rational manner.

Under the head of "The Outlook" the author insists that the influence of ancestry, that is, heredity, is a profound problem, and that it seems more extraordinary in proportion to our study of it. Not the condition itself, but a tendency is inherited.

Under "The Nature of Mental Derangement" Dr. Lincoln starts out by quoting from Shakespeare:

> Mad let us grant him then: and now remains
> That we find out the cause of this effect;
> Or rather say, the cause of this defect;
> For this effect, defective comes by cause.

This inquiry is pursued with much discretion and perspicuity throughout Chapter XI. The other chapters include Degeneracy, Education, Self-Education, Social and Civic Duties, and an Appendix.

As a whole the little book is a valuable contribution and ought to be in the hands of at least several millions of those who are not yet quite mature, yet who are capable of thinking and of being influenced by a better knowledge of the psychic laws under which they live.

Hygiene and Public Health. By Louis Parkes, M.D., D.P.H., Lond. Univ., and Henry Kenwood, M.B., D.P.H., F.C.S. With illustrations. Philadelphia, P. Blakiston's Son & Co. Net, $3.00.

This work is based on a volume having the same title and prepared by one of the two authors who stand sponsor for this one, of which work five editions were successively called for.

Of the revised work the present is the second edition demanded within a twelvemonth, which is practical evidence of its high appreciation.

While this work is "more especially intended for those members of the medical profession who are studying for the various Public Health Diplomas," it is in reality a reliable guide to the profession generally upon all topics pertaining to the public health.

The authors have apparently not been unmindful of the fact that the public, even the more intelligent of the lay public, is given to reading more or less in works on science as well as on medicine proper. Every year adds to the number of laymen who pride themselves on the possession of a fair general knowledge of all the current topics connected with hygiene, sanitation and the underlying principles of therapeutics. In the volume before us technical terms have been either avoided or so fully explained that this class of readers will have no difficulty in understanding the text. We heartily commend this feature to future authors and editors of similar works. Sanitary laws and the laws of hygiene can never be made too common.

Details of laboratory work have been purposely and wisely omitted. They would have swelled the volume to several times its present size, and would have been superfluous, since numerous manuals treating of this phase of the subject are already available.

Some idea of the scope of the work and of the space devoted to the different phases of the subject can be gleaned from the following condensed list of contents:

Eighty pages are devoted to a study of water, based on the initial statement that "water is a prime necessity of life." As in other portions of the work, the facts cited and illustrations employed are derived from conditions prevailing in England, Scotland, etc., but the principles apply to all civilized countries.

The question of "The Collection, Removal and Disposal of Excretae and Other Refuse" fills 128 pages, "Air and Ventilation" occupying 90. "Warming and Lighting" are disposed of in 25, and "Soils and Building Sites" in 17. "Climate and Meteorology" require 36 pages, while "Exercise and Clothing" are disposed of in 13. "Food, Beverages and Condiments" are allotted 88. The Contagia, Communicable Diseases and their Prevention—Hospitals," require 148; "Disinfection," 34; "Statistics," 33; while the final chapter (XII.) is devoted to "Sanitary Law and Administration."

A very full index completes the volume, which taken as a whole does credit to both authors and publishers.

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According to some facetious Frenchman, the world has got to pass through three gastronomic or dietetic ages. The first was the Age of Cannibalism—roast missionary. The second is the Age of Roast Beef—the age with which we moderns are still wrestling. The third is to be the Age of Fruits, Nuts and Farinaceæ—the vegetarian age.

The three essentials of all animal life are air, water and food. The individual who breathes well, drinks plenty of pure water, and eats a reasonably sufficient quantity of wholesome and nutritious food should be an exponent of sound health. Most people shamefully neglect the breathing function, drink too little water of any kind, or too much that is impure And in this connection it ought to be better known that to be decidedly unwholesome water need not taste, look or smell bad. It may even be perfectly clear and sparkling, odorless and fairly delicious to the taste, and yet be very decidedly unhygienic.

Nor can all the filters in the market make good water of that which is poor by reason of its mineral and earthy constituents. It is the "hardness" of water that makes it deleterious. This is aside from any organic material that may be present. Any good filter removes these. Nothing short of a distilling apparatus will eliminate the invisible but insidious earthy salts or mineral constituents. It is these that harden the arteries and pave the way for arthritis, atheroma and apoplexy.

Notes and Queries.

Query 146. (1) Will you kindly give information as to the "Grape Cure" and the manner of conducting it? For what is it recommended? Should the skins of the grapes be eaten? Could Malaga grapes be used?

(2) Is Kumyss a wholesome beverage and what is the best method of preparation?

R. H. R., Cardiff, N. Y.

Answer. (1) The "Grape Cure" was described in the April, 1901, GAZETTE. In further response we will add that the mildly acid and sweet varieties of grapes are preferable. The patient is to eat nothing but grapes, but is to partake freely of these, without going to the extreme of satiety or disgust, the quantity to be gradually increased to a maximum of 8 or 9 pounds per diem. Exercise in the open air and daily baths should accompany the treatment. Skins and seeds are sometimes but not always rejected. Except in special cases they may be eaten with impunity, and in some with benefit. The "Grape Cure" is recommended in dyspepsia, especially when accompanied by constipation, in lithemia, rheumatism and gout, in diseases of the liver, chronic diarrhœa of dysenteric origin, chronic kidney disease, chronic cystitis, heart diseases, etc., etc.

Malaga grapes are poor material.

Patients are required to rise early, and at some of the most successful German establishments mountain climbing is made a part of the treatment. This is to be very gradually indulged, increasing the distance as the patient improves.

(2) Kumyss is considered a wholesome and quite nutritive beverage. It is to be taken more as food than as a drink. It is essentially fermented milk.

One process of manufacture is made easy by a preparation called "Kumysgen," which can be supplied by your druggist.

Query 147. I am hesitating between the various makes of surgical chairs. Can the editor of *Notes and Queries* mention the names of such as he believes to be the best for the country practitioner? If so, he will greatly oblige

A COUNTRY DOCTOR.

Answer. It is contrary to the policy of all reputable medical journals to discriminate in trade recommendations.

Since no manufacturer of surgical chairs is using our advertising columns at present, we are free to say that one of our editors is using the McDannold with complete satisfaction. There are several others that are no doubt equally as good, but perhaps not so reasonable in price.

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TO CORRESPONDENTS.

WE continue to receive inquiries of a strictly personal nature, which, according to our invariable rule, cannot be published or replied to.

When these inquiries are accompanied by stamps for postage we make brief response by mail. When no stamps are enclosed we must consign them to the waste basket.

In some cases parties ask for professional advice that would cost them a round fee if sought at the hands of their regular medical advisers, yet they ask us to work for nothing and throw in postage and stationery! We wish we had time, stamps and inclination (!) to accommodate them, but we haven't.

Of course there are occasional exceptions to the rule, but when people get something for nothing they either get no more than they pay for or they cheat the giver.

We hope we are thoroughly understood.

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THE opening at Chicago of a new cemetery and the cutting of rates by the undertakers may place death within the reach of all who desire to make the upward start from that city.

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THE editor of the Silverton, Colo., *Standard* has no doubt ere this received a call from a happy father of that camp. This birth notice appeared in the last issue of that esteemed paper: "Born—To the wife of Pat Smith, a boy. The boy favors his old dad in several ways, viz: He's bald, has a red nose, takes to a bottle like a bumblebee to a lump of sugar, makes a great deal of noise for the money he spends, and won't work."

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THE
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FLATULENCE, METEORISM AND TYMPANITES.*

By Charles D. Aaron, M.D.

Professor of Clinical Gastro-Enterology and Lecturer on Dietetics in the Detroit College of Medicine;
Consulting Gastro-Enterologist to Harper Hospital, etc.

Flatulence is the distention of the stomach or the intestine with air or gas. When the gas accumulates acutely in the intestine we call it meteorism. A chronic accumulation of gas in the intestinal canal we call tympanites. Normally the intestines always contain a certain amount of gas. A part of this gas is atmospheric air which has been swallowed with the saliva or taken with the food. In this way a great deal of oxygen and nitrogen is introduced into the stomach and intestine. Oxygen is quickly absorbed and is, therefore, never found in the lower intestine. In consequence of diffusion quite a little carbonic acid gas passes through the blood vessels of the intestinal wall into the lumen of the intestine. The other gases found in the intestine come from decomposition of food. From fermentation and putrefaction of food in the digestive tract we get hydrogen, ammonia, methane and sulphuretted hydrogen. There are, therefore, two causes for the presence of gas in the intestine: (1) the taking of gas from without; (2) where it is formed through decomposition of food within the intestinal canal.

It is quite natural that gases should develop from the food when one considers the course it takes through the intestine. In general we may say that as soon as the material in the intestinal canal slackens, the production of gas is augmented. As the contents progress more slowly in the large intestine it is here that the gases accumulate most. If these gases escape at the time of defecation they give no more trouble. If they are retained, this accumulation becomes the cause of various painful symptoms of which abdominal meteorism is the most evident.

The slowing of the material through the intestinal canal is frequently found in patients who lead a sedentary life. The matter accumulates, hardens and cannot escape when the effort is made. This hardened mass alters the intestinal walls by irritating the epithelium and assists in the production of a chronic enteritis. We usually find the formation of a great deal of gas in localized and diffused peritonitis. When the folds of the peritoneum become inflamed and thickened they cause adhesions which interfere with the course of the intestinal contents. Whatever may be the cause of retarded peristalsis, gas is always formed. Abnormal formation of gas in the intestine always implies the presence of large quantities of decomposing substances. The development of gases is increased when a pathological condition of the digestive tract exists.

In certain diseases of the stomach the gastric juice is so weakened that the proteolytic power is greatly reduced. This allows the bacteria to attack the imperfectly digested food and we get fermentation and putrefaction. The secretions of the intestine are unable to inhibit this decomposition, so that the formation of gas which has started in the stomach, continues in the intestine. Normally one-third of the solid matter of feces is bacteria. These merely await the slowing of peristalsis or constipation to form the gases that give so much trouble. Anything that will interfere with the secretion of the gastric juice allows the food to decompose, and this fermentative mass may irritate the mucous membrane and produce a diseased condition which further complicates the whole situation. When there is interference with the elimination of gases through the natural channel they always accumulate and distend the intestine. In general all conditions which lower or retard peristalsis assist in the formation of gases. When there is a small quantity of gas in the intestine it may be absorbed and taken into the blood and thus eliminated. When there is stagnation in the intestinal canal the production of gases is greatly increased and the intestine stretches to meet this condition.

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* Read before the Michigan State Medical Society, Detroit, Mich., June 11 and 12, 1903.

Fermentation in the digestive tract is the chemical decomposition of food which is induced by bacteria. To live it is necessary for these bacteria to acquire nourishment. They attain this by attacking the food and thus liberate gas. Fermentation and the liberation of these gases cease when the nutriment is exhausted. Sulphuretted hydrogen and marsh gas are very common bacterial products.

Pasteur observed the presence of bacteria in the intestinal canal and proved that they were the cause of the formation of gases, and he held that they were essential for the maintenance of life. We have come to see that this is an extreme view. We know that micro-organisms have their habitat in the healthy body as well as in the diseased body, and that the production of gas is absolutely dependent upon their presence. The function of hydrochloric acid in the stomach is to assist digestion and destroy germs. It has been shown that hydrochloric acid does not entirely destroy all the germs that have reached the stomach. The stomach is not a perfect sterilizer. Under normal conditions free hydrochloric acid arrests fermentation up to a certain degree. Fungi can exist in the stomach in the presence of hydrochloric acid. Since the normal stomach contains fungi, notwithstanding the presence of hydrochloric acid, we would naturally find a great many more germs in chronic gastritis where the secretion of hydrochloric acid is decreased. In all degrees of catarrh of the stomach the food that has been taken into the stomach has not the natural antiseptic, free hydrochloric acid, and germs find a medium for propagation. In consequence of abnormal fermentation the formation of gas is great. In infants the gastric glands are not fully developed, and thus fermentation not being arrested, fungi thrive. A similar condition exists in adults in all degrees of catarrh of the stomach. Fungi enter the stomach, multiply freely and establish nidi for propagation. Thus the stomach may become the direct cause of the gas which has allowed the micro-organisms to pass on into the intestine unchallenged, and here their multiplication is rapid.

The accumulation of gases is a symptom of various diseases. It is found in constipation, intussusception, invagination, volvulus, hernia, strangulation, localized and diffused peritonitis. It is easy to understand how gas occurs in a stenosis of the intestine. But it is the purpose of this paper to draw your attention to cases where we have a continuous accumulation of gas due to an abnormity in the secretion of the gastric juice.

Let us study the symptoms of flatulence. On inspection we find the abdomen distended and at times so much so that all deep palpation is impossible. With percussion we obtain in all these cases an exaggerated resonance, at times a real tympanism. This rarely lies over the small intestine, but is found almost always over the large intestine. Sometimes we find the tympanic resonance distinctly over the entire course of the large intestine, again it is localized in one of the iliac fossæ, proving that at times the cæcum, the ascending colon or the descending colon, is more affected than the transverse colon. The intestine may distend to three times its normal size.

Much more interesting are the symptoms of compression of the neighboring organs. The accumulation of gas may be such that the abdominal wall, already more or less distended, refuses to distend any more. In youth this degree is quickly attained and the abdomen remains more or less flat. The large intestine, greatly increased in size, compresses the surrounding organs. The diaphragm is obliged to stretch its concavity, as it is pushed up by the liver. At the back the solar plexus, the arteries, veins and the kidneys are compressed and thus produce a great deal of trouble.

The thoracic organs suffer through abdominal distention. The lungs may be extremely compressed from top to bottom. This compression may be such that the height of the lungs is diminished by one-fifth. Therefore, the lungs cannot expand during inspiration, and oxygen cannot enter into many of the alveoli. The result is that the patient suffers constantly from dyspnœa. This dyspnœa may not be severe, but it is disagreeable and increases considerably after meals. The seat of the trouble is in the intestine where the gas is accumulating, and all medication directed toward the lungs will not relieve the patient in the least. The dyspnœa may manifest itself at times in the form of crises of asthma. But the origin of the asthmatic crises is to be found in the compression of the solar plexus, arteries and veins.

The heart does not functionate normally as it is being pressed upon from all sides. The pulse is slow and easily compressed. Patients themselves, upon ascertaining these symptoms, become uneasy and imagine they have a disease of the heart and consult a specialist for this trouble. At times the heart may beat violently, and this may become extremely painful. Patients complain that they cannot sleep in a horizontal position. It is almost always between four and five o'clock in the morning that they complain the most, and this coincides with the arrival of the material in the transverse colon. All these symptoms ameliorate when we prevent the formation of gases in the intestine.

Many patients suffer from headache which often becomes unbearable. Sometimes it is localized in the frontal region and again at the level of one of the hemispheres. At times there are periods of depression which coincide with a stubborn constipation and an accumulation of intestinal gas. Patients often complain of pain in the eyes and have luminous sensations. At other moments they have a buzzing in the ears. The circulation is poor and the patients have cold hands and feet. Nothing warms them up; during the night they are obliged to sleep with hot water bags. The distention of the sigmoid flexure and of the rectum compresses the pelvic organs. In extreme compression the bladder may be pushed from the back to the front and its capacity is very much diminished, which necessitates frequent urination.

There is an important complication which may result directly from this intra-intestinal tension and that is appendicitis. The materials in the cæcum, in cases of flatulence, tend to become pushed back toward the appendix. Under this continued pressure the orifice of the appendix enlarges. A little of this material may be forced directly into the appendix, and then the lumen closes. The microbes, already numerous in the intestine, become rapidly virulent and thus produce appendicitis. The proof is that many cases of appendicitis are preceded by a more or less abnormal fermentation generating the intestinal gas.

In the treatment of flatulence the cause must always be taken into consideration. All diseases of which flatulence is a symptom, as already mentioned, must receive special consideration and treatment. The stomach contents should always be examined before determining the proper course of treatment, as many cases have their origin in the stomach. If gastric catarrh is the cause, the treatment of the catarrh will remedy the whole trouble. A hyperchlorhydria may have to be corrected.

Bacteria which have been taken into the stomach multiply rapidly in the duodenum, and continue to do so until they are unusually numerous in the large intestine. Fermentation takes place in the stomach and upper intestine. Putrefaction always takes place in the large intestine. It is estimated that an unclean mouth can contain over one billion bacteria. These are taken into the stomach with the food and here find a medium for rapid propagation. We can thus readily understand why the teeth and mouth should have special care.

The dietetic treatment of flatulency is of primary importance. Foods contain principally four of the 82 elements, carbon, hydrogen, oxygen and nitrogen. Carbon, hydrogen and oxygen are found in the carbohydrates and fats, while nitrogen is mostly found in the proteids. All these foods are subject to decomposition by bacteria, which causes the liberation of gases in the alimentary canal. The fermentation of the carbohydrates occurs in the stomach or the upper part of the small intestine. The proteids undergo putrefaction in the lower bowel. The gases produced are carbonic acid gas, hydrogen, sulphuretted hydrogen and methylmercaptan. The extent of the putrefactive process in the intestine can be measured by the amount of indican in the urine. We cannot measure the amount of carbohydrate fermentation. If we have fermentation we can starve out the bacteria causing this fermentation by giving foods upon which they cannot subsist. If we have putrefaction we can starve out the bacteria, and this can be done by forbidding proteids. All food which causes flatulence must be avoided. Most of the substances that incite fermentation are beer, champagne, kumys, starches, sugar, vegetables rich in cellulose, cabbage, potatoes, beets, peas, beans, rye bread, fresh bread, cakes and fatty foods. Artificial and natural mineral waters containing carbonic acid gas are to be forbidden. With many people a milk diet will produce flatulence.

There is as yet no medication that will prevent the formation of gas in the intestine. All drugs to prevent decomposition of the intestinal contents have thus far failed. The absorption of gases by medicine is an illusion. In constipation we must see that there are regular evacuations of the bowels. The most important thing is to expel the gas through the anus. Exciting peristalsis assists in the elimination of gas, and this may be done by cathartics. The kind of cathartic must depend upon each special case. The drugs usually used to aid the expulsion of gas are the carminatives, which stimulate gastric and intestinal movements. It is absolutely necessary to get normal evacuations of the bowels. For this purpose I have found nothing better than chemically pure oleum petrolatum. This mineral oil is not acted upon by the gastric or the pancreatic juices and passes through the whole alimentary canal unchanged. It lubricates the gastrointestinal mucous membrane and acts as an emollient. The feces glide along giving normal movements without irritating the intestine. Scybalæ do not form, and the gas passes off with the oil, which is seen in every evacuation. Oleum petrolatum is colorless, odorless and tasteless and can be given in tablespoonful doses four times daily. The amount will have to be regulated by the number of evacuations.

The mechanical clearing of the intestine is of the greatest importance when not contraindicated by inflammation and ulceration. The best means for removing the gases is the free use of water per rectum. A long rubber stomach tube may be carried high up into the bowel and acts in a favorable manner. The introduction of the tube into the rectum will bring away a great deal of gas. The tube stimulates peristalsis and the elimination of gas is rapid. Enemas, especially turpentine enemas, are frequently very effectual. Cold water is often more apt to stimulate peristalsis than warm water. When not contraindicated, massage of the abdomen may be permitted. Massage and electricity will influence peristalsis and hasten the passing of gas. The faradic current may be used, but it is not as good as massage. The use of a cannon ball from two to five pounds on the abdomen has been found very valuable in these cases. It should be rolled over the large intestine for five minutes every night and continued for some time.

32 West Adams Avenue.

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MEDICAL DISCOVERIES BY THE NON-MEDICAL.*

By George M. Gould, M.D.,

Philadelphia.

I have been struck by the fact that the majority of great medical discoveries, truths and instruments, have not been made completely and suddenly, but have been led up to by preliminary and progressive steps, and that the layman has so often made these discoveries prior to the medical practitioner. This great medical truth is, indeed, but an illustration of the general law that all professional progress, in whatever branch of study, is somehow or other a result of stimulus from without. There is so much interest, and there are so many lessons to be drawn from such observations in medical history, that I have in late years kept minutes of this class of truths, from which I make the following selections:

When we commence observation of the origins of medical discovery and treatment, we are struck by the fact that "our brothers the animals" were first in learning not a little of medical art. It has been noticed that birds often show a true surgical instinct. M. Tatio on several occasions has killed woodcock that were, when shot, convalescing from wounds previously received; and in every instance found the old injury neatly dressed with down, plucked from the stems of feathers, and skilfully arranged over the wound, evidently by the beak of the bird. In some instances a solid plaster was thus formed, and in others ligatures had been applied to wounded or broken limbs. Ten times in his experience he has found birds whose limbs had been broken by shot with the fractured ends neatly approximated and ligated together—a statement that is vouched for by no less a naturalist than Fulbert Dumonteil. Dr. James Weir says that when bees are attacked with diarrhœa they at once begin to suck astringent pieces of the dogwood, poplar, wild cherry, or hickory, and readily cure themselves. Their instinct carries them so far that "in winter if they should happen to be afflicted with diarrhœa, they will readily drink a decoction of wild cherry if it is placed in the hive. Moreover, they seem to know that filth is a source of disease, for in winter all the sick members of the hive deposit their dejecta as far from the combs as possible. As soon as warm weather arrives, the accumulated filth is removed and the spot carefully cleansed." Dr. Weir further believes that many of the higher animals have discovered and use a materia medica that should be recognized by human physicians. For instance: Dogs will seek out and devour the long blades of couch-grass (*triticum repens*) when they are constipated; horses and mules will eat clay when they have "scours;" cattle with eczema have been seen to plaster hoof and joint with mud. He speaks of seeing a cow break thin ice on a pond and treat her itching joint to a mud poultice. Cats will go miles when they are "under the weather" for a dose of catnip. The saliva of animals seems to have a distinct curative action. Dogs, cats, cattle, rodents, monkeys—all lick their wounds when they can get at them, and soon effect cures. Weir also tells of a large dog-faced monkey who scratched his shoulder badly on a projecting nail in his cage. He immediately went to a corner and, seizing a handful of clean sawdust, pressed it on the bleeding scratch. In a few moments the bleeding ceased and the blood dried, leaving a coating under which the healing was prompt. Rev. Egerton R. Young, a missionary in northwestern Canada, shows us that the surgical instincts of the dog may become so far developed as to produce a real surgeon-doctor. One of his dogs spontaneously took up this work, and became so expert that the Indians called him *Muskeke Atim,* the surgeon. Galls, wounds, frozen feet, etc., in the other dogs were successfully and systematically treated by Doctor "Rover." The wounds or sores that could not be reached by the dog's own tongue did not heal. The fact shows that, in a state of health and with pure food, the dog's saliva has a perfect bactericidal and healing power. Perhaps it would make an ideal antiseptic. No bacteriologist has caught the hint.

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* *Journal of the A. M. A.*

The logical or evolutional order of the subjects of my list would be to pass from the medicine of animals to that of savages, and so, finally, reach the more compact body of truth now held by the profession. I am compelled, however, to take the matter up topically, in order better to place it before you; the contributions of primitive men must, therefore, be noticed as we proceed from subject to subject.

In the history of medicine *ophthalmology* was one of the earliest subjects to command professional opinion. The eye is the most important of all the organs of sense, and blindness the greatest of afflictions. The early gatherings of medical lore, in large part, relate to the eye. The operation of *couching cataract* goes so far back in primitive times that Ælianus says that men learned it from goats, who, by pushing their heads against the thorns of a thornbush were accustomed to operate in their own cataractous eyes. It is noteworthy that in the operation by the Greeks a mydriatic was used and local anesthesia, as well as general narcosis, was induced. The greatest discovery in this specialty is held to be the ophthalmoscope, but two others, in my estimation, far outrank it. Before Helmholtz, a non-medical man, Babbage, doubtless devised an instrument "for the purpose of looking into the interior of the eye," and even Helmholtz said of himself that it was not inclination but external circumstances that forced him to become, temporarily, a physician.

According to Dr. John Green, *spectacles,* both convex and concave, were in common use by the Chinese before the opening of commerce with Europe. They were made of a transparent stone, of a color like that of a strong infusion of tea, called scha-chi (tea-stone), and were tied on the head by silken cords. The common use of some form of magnifying glass by the ancients is well proved by their perfect workmanship, as displayed in the engraving of gems; and a crystal wrought in the form of a convex lens has been actually discovered in the ruins of Nineveh by Sir Francis Layard. Pliny's description of the visual defect of the Emperor Nero strongly suggests compound astigmatism. The statement that Nero was accustomed to view the conflicts in the arena by means of a smaragdus would seem to be best explained by assuming that the emperor possessed a large, highly polished emerald, very likely of uneven curvature in its two principal diameters. The theory implies that the use of the gem for this purpose was the result of an observation made by Nero himself, who may, therefore, be credited with the accidental discovery of an eyeglass suited to myopia or compound myopic astigmatism; the invention apparently died with the inventor. Certain it is that spectacles were in common use for at least 150 years before the theory of their action was explained. Bifocal lenses were devised by a layman, Benjamin Franklin.

Although a physician discovered *astigmatism,* it was the mind of the natural philosopher or physicist in him that made the discovery, not that of the medical man.

The discovery of the clinical significance of astigmatism was made by a physician, S. Weir Mitchell, 75 years later.

The laryngoscope is one of the best illustrations of a great medical discovery made by a non-medical man. The inventor of this instrument was a singing master of London, Señor Mañuel de Garcia, who was still living in London in 1901, in his 98th year. In 1855 he presented a paper to the Royal Society of London, entitled "Physiologic Observations on the Human Voice." His investigations were carried out on himself by means of mirrors, a small one at the end of a long stem, for introducing into the pharynx, and a large one, which served both for directing the light on to the small mirror and to enable the operator to see the image formed on it. Garcia's invention was treated by the English with apathy and even incredulity. His paper, however, fell into the hands of Türck of Vienna, who failed with the device, but later, Czermak converted it from a "physiologic toy" into an instrument of scientific research and popularized its use by his demonstrations on his own throat in Vienna, London, and elsewhere.

In the seventeenth century, Sir Kenelm Digby published his book on the cure of wounds by the "Powder of Sympathy." The knowledge of this wonderful powder, he says, came from a priest just returned from the Orient. By the aid of this "vitriol" he claimed to heal wounds without either touching or seeing the patient, by dissolving some of it in a vessel containing water, and putting in this water any article having on it blood from the wound to be treated. In the meantime the patient was advised "to cast away all plasters, only keep the wound clean and in moderate temper 'twixt heat and cold." However absurd this may seem, Draper tells us it was the beginning of the doctrine of *adhesion,* or the cure of wounds by immediate union, a practice little appreciated until the days of John Hunter; while Dr. W. A. Hammond claims that it embodied all there is of real value in our modern antiseptic treatment of wounds, and occasioned a greater revolution in the treatment of wounds than has been accomplished in later times by Lister and his followers.

According to Dr. W. J. Hoffman, the Coyosteras Apaches employed a *splint in fractures* and gunshot injuries of the extremities that is well worth interest. An illustration is shown of an appliance used by a warrior for a comminuted fracture of the middle third of the left humerus. Strips of cedar wood, ¼ inch thick, ¾ inch wide, and 8 inches long, were bound together with sinew and applied to the arm by tying the loose ends of the sinews. Through the spaces between the strips water could be applied and a free discharge likewise secured.

Dr. McClanahan says of the Indian *treatment of compound fractures:*

> First, reduction by extension and counter-extension. Some of the medicine men acquire considerable skill in manipulation and their results are creditable. Next all the openings are filled with bone-marrow extracts. Then over all is smeared a coating of the scrapings of rawhide boiled in water. This forms a gelatinous layer having considerable strength. Over this and around the entire limb is placed a covering of fine inner bark, when the limb is ready for the splints. These go entirely around the limb, being held in place by circular strips of cloth. If it is an arm, this is carried across the chest and retained by a circular bandage about the neck.

Franklin Staples states that the Talmud describes, among other operations, one for *stone in the bladder* and others for the reduction of various fractures and dislocations.

F. Poncet pictures a terra cotta image found in Phœnicia, in which there is represented a perfect hernial bandage with two metallic plates, to be fitted over the inguinal openings. It leaves practically no doubt that the Phœnicians recognized *hernia* and knew of its *successful mechanical treatment.*

According to the Talmud, *carbuncles* were manipulated with the fingers and then cut crosswise (crucial incision of to-day).

The collections of surgical instruments made from the ruins of Herculaneum and Pompeii bear witness to a high degree of specialization and art on the part of the Roman surgeons of that time.

Wunderbar enumerates from the Mishna and the Talmud no less than 56 forms of surgical instruments and appliances, exclusive of the obstetric stool referred to in Exodus, 1:16.

Anders, writing of the Winnebago and Dakota Indians, says that, as regards surgery, they never amputate. In large incised wounds, the parts are carefully brought together and secured with sutures of animal sinew, which they remove in 6 or 8 days.

As to *anesthesia,* Dioscorides tells of a draught that may be given to human beings before they undergo the pain of the surgeon's knife or cautery. Later, Pliny gives the formula of this draught, which was not only reputed to annul pain but was credited with producing a death-like sleep. Dioscorides further says, "a wine is prepared from the bark of the mandragora root, and three cyathi (a little more than four ounces) of this is given to those who require to be cut or cauterized, when, being thrown into deep sleep, they do not feel any pain." Pliny remarks that the juice of the leaves of the mandragora is more powerful than the root. Of such a preparation he says the dose is six drams, to be taken before cuttings and puncturings. Speaking on the same subject, Apuleius says that if any one is to have a limb mutilated, burnt, or sawn, he may drink a half ounce of the preparation, with wine, and while he sleeps the member may be cut off without pain or sense.

In passing from surgery to medicine, we should note that the most ancient and persistent philosophy of disease, lasting down to our own times, was that it was due to some evil principle or spirit coming into the body from the outside, and to be fought against and driven out by any means possible and powerful. The germ theory, infection and parasitism, on which our science is now builded, shows how essentially true was the old perception.

For forty years I have been repeatedly struck by the fact that all *animals hate flies* with an intensity not entirely explained by their "suctorial," stinging, or biting powers. Our domestic animals, even our draught animals, expend as much energy in keeping off the pests as they do in our service, or in getting food. Even the most pachydermatous are not exceptions. If we observe an elephant, we are astonished at his constant watchfulness and exertions in keeping off the common flies whose suctorial powers are so feeble as to be entirely out of proportion to the energy spent by the elephant. Might not bacteriology have received a hint here of service in discovering the etiology of disease? Did not Nature long ago thus find out that flies might be the carriers of disease germs? Science is now rapidly advancing toward the same discovery. The entomologist of the United States Agricultural Department, Dr. Howard, after long studies, believes that flies are often the active agents in spreading typhoid fever. The bacillus of Eberth has been found in flies, and if Dr. Howard is right, then the profession must educate the public and nurses, and so order hospital construction and service that flies shall have no access to food.

In the Talmud (Ketuba 77:2) is mentioned a disease, "Rotz," characterized by weeping eyes and a discharge from the nose and mouth (influenza?) said to be communicated from man to man, sometimes by flies! The malady is plainly and unmistakably ascribed to an animal parasite.

In the light of the importance now being attached to flies as the carriers of contagion, much interest attaches to the fact that precautions against breeding grounds for flies about camps are to be found in the Scriptures. That grand old sanitarian, Moses, found it necessary to be most explicit in the management of camps.. . In Deuteronomy, 23 : 12-14, the old version reads: "Thou shalt have a place also, without the camp, whither thou shalt go forth abroad. And thou shalt have a paddle upon the weapon; and it shall be when thou wilt ease thyself abroad, thou shalt dig therewith and cover that which cometh from thee." The new version reads: "Thou shalt have a paddle among thy weapons," and, as a variant for paddle, gives "shovel" in the margin. The passage, therefore, means that a shovel for burying excreta immediately is a necessary implement for the members of every camp.

Herodotus writes (chapters 95-6) that the contrivances which the Egyptians use against the *gnats* wherewith the country (Egyptian marshlands swarmed are the following: In the parts of Egypt above the marshes the inhabitants pass the night on lofty towers, which are of great service, as the gnats are unable to fly to any great height on account of the winds. In the marsh country, where there are no towers, each man possesses a net instead. By day, it serves him to catch fish, while at night he spreads it over the bed in which he is to rest, and, creeping in, goes to sleep underneath.

A correspondent of the *British Medical Journal* (Aug. 30, 1902) writes that in 1864 one of her majesty's sloops anchored off Ajiabambo in the Gulf of California "dollar hunting," and sent boats ashore, the crews of which were to proceed a short distance inland to obtain the dollars which, in those days, the Mexican government did not allow to be exported. The medical officer seeing that the country was sandy and covered with brushwood, feared that malarial fever might result with the men so employed, but was assured by a resident that there were no *mosquitoes* and that "where they do not exist there was no chance of malarial fever." The officer reported this to the medical department of the navy, but it attracted no attention.

In the fifth century B.C. Empedocles of Agrigento is said to have freed Selinante from fever by drainage of the stagnant waters about the city. A number of Roman writers are quoted by Marchiafava and Bignami, showing that marsh lands were injurious to the health of man, because of the miasms, invisible animal and insect life, emanating from them. It was suggested that the mosquito was the origin of malaria as early as 1618. The Abyssinians knew where and in what months malarial diseases are most prevalent, and, by acting on this knowledge, they generally succeed in avoiding malaria. When absolutely obliged to cross such places as the valley of the Mareb in the fever season, they continually explode blank cartridges and light damp fires to keep away "the fever." The Chillooks and Bongos of the Upper Nile make great fires of dried cow-dung when their herds come in at night. Thus a cloud of smoke hovers over the village and protects men and beasts from the mosquitoes. The Andaman Islanders plaster their skins with a mixture of lard and clay to protect themselves from the bite of these insects. The scientific demonstrations of the relation between the mosquito and malaria is recent, but the natives of malarial districts suspected it long ago and protected themselves accordingly.

Alexander von Humboldt says some of the Orinoco tribes of natives smear themselves with red paint, "to keep off the mosquitoes, probably."

Indeed, the historic foreshadowings of the theory of the microbic origin of disease are too numerous to gather here. But more than to any other we owe to Pasteur the discovery of the microbic origin of contagious diseases—and Pasteur was not a medical man, not even a physiologist; he was simply a chemist. By his researches as to the origin of silk-worm disease, of charbon, or splenic fever, of chicken cholera, etc., he laid the foundations of preventive medicine, a branch of science which is, beyond question, the greatest benefactor of civilization. His work on rabies must also not be forgotten.

The *Quarterly Review* of July, 1899, says that the prohibition of pork among the Israelites and Mohammedans probably arose from the danger of *Taenia solium* and *Trichina spiralis;* and the general use of hot drinks, like tea in China, was probably based on acquaintance with the ill effects that may result from the use of polluted water.

And, as to *immunity,* natural and acquired, there have long been suggestions of the truth in the habits of animals, and in human life everywhere. Old citizens of rattlesnake countries know of dogs which are not only fearless but which find their chief pleasure in hunting these snakes. Having been bitten and escaped death after their first experience, they become thereby immune, and thereafter progressively so with each fight. It is strange no physician ever realized the significance of the fact.

S. Weir Mitchell says that it was an astronomer (Galileo) who gave us the first rude *thermometer,* and it seems to have been another, Herman Kepler, who first, and certainly before 1600, *counted the human pulse,* or, at least, left a record of having done this memorable thing. Does it not, Mitchell asks, seem incredible that of the numberless physicians who sat by bedsides, thoughtful, with fingers laid on that bounding artery, none should have had the idea of counting it?

K. N. Macdonald says: "*Inoculation with smallpox virus* has been practised by the Burmese from time immemorial. Among them, smallpox was called the inevitable disease, because of their idea that it is rooted in the human body from the time of birth. The usual procedure in inoculation is to mix the virus with milk and insert it under the skin of the arm."

Immerman claims that accounts of the inoculation of human smallpox may be found in the records of the most ancient times. Long before the beginning of our chronology, variola was purposely inoculated as a prophylactic measure in Hindoostan and China. In the latter country, the method never progressed beyond clothing the individual to be inoculated in a shirt impregnated with variolous pus or stuffing dried smallpox crusts into their noses. These measures frequently failed and they still more fequently led to violent variola.

Immerman says that the fact that the so-called *vaccinia* (cowpox) was capable of transmission to the human individual has been known for an indeterminate period of time. Long before the days of Jenner it had been observed that individuals who had never had smallpox, but who had accidentally been infected with cowpox, remained immune when subsequently exposed to variola. Alexander von Humboldt, for example, says that since the earliest recollection of man, certain tribes of Indian shepherds in the Mexican Cordilleras had been thoroughly convinced of the protective effect of vaccinia against variola. Brun makes a similar statement in reference to the clan of Elihats in Beluchistan. The belief in the immunizing effect of cowpox was also prevalent among the country and dairy folk of Europe and thoroughly rooted in certain parts. The tradition brought, by a dairy maid, under Jenner's notice, was widely spread in all the dairy districts of England and Ireland; it was prevalent in as many as 18 English countries. Benjamin Jesty, a farmer of Dorsetshire, England, was probably the first person in Europe to *vaccinate with bovine virus for prophylactic purposes.*

I cannot forbear admitting that this magnificent act of Jesty has never been rated at its true value. That Jesty was a layman does not detract from the honor that is his due, but, to my mind, adds to it. Neither Jesty nor Jenner discovered the fact of immunity from vaccinia, and neither could explain it. That Jenner waited 25 or 30 years after the dairy folk had found the truth, and 22 years after Jesty vaccinated his family, before he vaccinated the Phipps boy, is not a reason for making Jenner the discoverer of vaccination. That honor seems to me to be due to Benjamin Jesty.

It appears that the Chinese have long observed the association between the death of *rats* in the house and the appearance of a case of *plague* a few days later in the family living there. J. Campbell Gibson directs attention to the fact that the disease which preyed on the Philistines, described in Samuel I, chapter v., vi., was bubonic plague, and that they recognized the dependence of the spread of this disease on rats (or mice as the text has it); the Philistines (who thought to appease Jehovah by sending back his ark) sent, at the same time, as guilt offerings, golden images of the tumors, the chief symptoms of the disease in those cases which were not fatal, along with golden images of mice. The importance they attached to this relation is plainly shown by referring to the Septuagint, wherein the tumors are spoken of as "plague boils," and it goes on to say "in the midst of the land thereof, mice were brought forth, and there was a great and deadly destruction in the city." The description of the disease is quite clearly that of bubonic plague; the recognition that mice were responsible is very interesting.

"Among the means of protection possessed by the living organism against infectious diseases and toxic agencies, laboratory investigation has placed the *bile;* but, as is true of so many other facts in medicine, empiric knowledge anticipated scientific discovery.

R. H. True says that less than two dozen of the botanic drugs now in use have been introduced during the century just closed.

The Talmud "pharmacopeia" shows that there were used infusions, decoctions, draughts, wines, vinegars, syrups, liniments, cataplasms, blisters, ointments, electuaries, plasters, powders; also cathartics, emetics, tonics, sudorifics, expectorants, abortives, hemostatics, astringents, poultices. The following substances also receive individual mention: Wine, vinegar, honey, whey, cotton seed, walnut and olive oil, garlic, mustard, pepper, coriander, ginger; also ox-gall, calamus, aloes, myrrh, mint, cotton-plant, hyssop, thyme, broomtop, poppy, acacia, mandragora, mandrake, mush, mercury, soda, borax, alum, iron, copper, lead and yellow arsenic.

S. S. Cohen observes that the use of *Passiflora incarnata* is not original with the medical profession, and goes on to say that Benjamin Rush told his students that they could learn many useful methods of treatment even from "quacks and old women." There is much that may be learned of drug-therapy from irregular practitioners whose crude reports of uncritical observations frequently contain accounts evidently truthful of trustworthy experience.

The use of *light as a curative agent* is said to have been discovered by accident and by laymen. In a communication to the Academie des Sciences, Dr. P. Garnault tells of his success in the use of light in the treatment of rheumatism and other diseases. His attention was first drawn to the subject by M. Trouve, who observed that a workman afflicted by rheumatism was completely cured by remaining in the vicinity of an intense arc light used for an electric fountain, and, subsequently, that in works employing electric soldering, in which there is a great effulgence of light, workmen had ceased to be affected by such diseases as rheumatism and gout.

Another version is given by *The Practitioner* as to the light treatment of lupus:

> Four or five years ago (so runs the story) a watchmaker of Berlin was the subject of lupus of the face, for which he had been treated in the clinic of Professor von Leyden at the Charité Hospital. As the condition did not improve, the patient left the hospital and resumed work. He was in the habit of using lenses of high power. One day, whilst examining the inside of a watch, he was standing close to the window. The rays of the sun passed through the lens, the focus of which happened to be on a part of the man's face affected by the disease. He felt a sharp pain, and on looking into a glass he saw that the burnt spot had become white. He repeated the experiment on the following days, keeping the lens sometimes for hours between the sun and the ulcerated places. In six weeks cicatrization had taken place, and the patient went to show himself to Professor von Leyden, who had declared that the disease was incurable.

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The writers of the Talmud understood *massage with oil inunctions; diaphoresis* by means of warm baths; and, most noteworthy, *venesection* for plethora and quinsy! (See Joma, 84, 1.) The *therapy of water* was also crudely understood (Sabb. 78, 1). Even *hypnotism* was resorted to, but without any appreciation of its real nature. By laying on of hands, hysterics were cured of blindness, paralysis, hysteromania, and catalepsy (Joma 84, 1).

The routine treatment, says Anders, of *intermittent and remittent fevers* by the Winnebago and Dakota Indians is an emetic or cathartic, followed by a vapor bath in the sweat house and then a cold plunge. The after-treatment consists in a tonic made by decoction of the willow. In *rheumatism* they rely almost wholly on the vapor bath, also the black cohosh (*cimicifuga*) in decoction, treatment hard to improve on to-day.

For *mucous enteritis* and *dysentery* they rely entirely on decoction of buttonwood bark (or American sycamore), which Anders says is singularly effective in their hand. They also use *Geranium maculatum* (cranesbill) successfully in *diarrhea*.

H. M. McClanahan, who lived among the Gros Ventres and Assiniboine Indians, says they have learned by observation that it is necessary that the skin, bowels and kidneys should perform their several duties. They induce perspiration most effectually by means of their sweat houses. These are about 4 feet high, 8 feet in diameter, and sunk one foot below the level of the ground. In the centre of the dug-out, which is covered almost air-tight with blankets, are placed very hot stones, over which hot water is poured, and the occupants of the bath thus get a steam bath. (Observe how the Turkish bath is foreshadowed.) Then, unless it be freezing weather, the bathers go from the bath to the river and plunge in. To produce catharsis, they sometimes resort to abdominal kneading to excite peristalsis as we do to-day. In suppression of urine, small heated stones are placed under the patient's back, failing in which the steam bath is resorted to. Recognizing that an unarrested hemorrhage means death, they use compression and spider's web, the latter to favor clotting of the blood.

R. H. True says that in the seventeenth century, the wife of the governor of one of the Spanish colonies (Peru), west of the Andes was attacked by malarial fever, and seemed likely to die. The natives gave to a Jesuit missionary, who worked among them, bark from a certain small tree, telling him to grind it up and give it to the countess at regular intervals. She recovered and, being of a philanthropic disposition, obtained a quantity of the powdered bark and sent it to Europe for use among the poor. In due time, the trees and plants were botanically investigated and named by Linnæus, in honor of the house to which the countess belonged, "Cinchona."

"The use of *buchu leaves* was learned from the Hottentots by the colonists of the Cape of Good Hope." At a very ancient date *camphor* seems to have been a well-known medicine among the Chinese, and *menthol* among the Japanese.

Coca leaves were cultivated by the Incas prior to the Spanish invasion for use on long journeys, to ward off fatigue. This fact drew the notice of Europeans and the discovery of coca and cocain resulted.

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There is no doubt that the use of *collodion* as a flexible antiseptic dressing is foreshadowed in the way the Mexicans burned wounds (cauterized them) and then covered them with the melted juice of the *ulli plant*—the india rubber plant. All this was prior to the Spanish Conquest.

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The forerunner of *tannic and gallic acid* as applied to hemorrhages may be found, according to Dr. D. Mitchell, in the use made of the decoction of oak-tree leaves in hemoptysis.

Jaborandi leaves, collected in the Amazon Valley, first attracted the attention of explorers by its use in the hands of natives as a remedy for snake bite.

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A decoction of willow bark was used by the American Apache Indians for intermittent fever. Our *salicin* is derived from this source to-day.

Strophanthus, a remedy now widely used for heart troubles, was first brought to the notice of explorers of equatorial Africa as a very deadly arrow poison, so deadly as to paralyze the heart by means of the smallest wounds.

A. J. Currie says that Pliny (xxiv. 9) gives numerous instances of the use of herbs by the ancient Celts—*e.g.,* hyssop for diseases of the eye. Broom-top, juniper and foxglove have long been known as remedies for dropsy, and, in suitable cases, with good results. For the cure of "white lights," an old Scottish name for pulmonary tuberculosis, nourishing food and fat substances were found to be of great value. *Oil from the blubber of the seal* was recommended.

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In many instances the extraction of the essential principle of the plant which was first discovered by the non-medical was made by chemists who were not physicians, and who derived their zeal for research from pure science rather than from therapeutics. This is especially true of the alkaloids, among which are atropin, brucin, cathartin, cinchonin, cystisin, delphin, digitalin, emetin, gentianin, lupulin, morphin, narcotin, picrotoxin, piperin, rhubarbarin, scillitin, solanin, strychnin, veratrin.

E. T. Williams states that, so far as we know, Moses was the creator of preventive medicine, an idea thought to be peculiarly modern. From whatever source the fragments of his system may have been derived the system was his own and that of the Powers which guided him. The notion of promoting health by preventing sickness was the foundation stone of the Jewish sanitary legislation. The prohibition against pork, considering the heat of the climate and its liability to be diseased, must be considered as a safe provision, especially in the light of present-day histology and trichinosis.

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Articles of clothing worn by lepers had also to be submitted. If found diseased they were burned. If doubtful they were washed and re-examined at the end of a week, when they were either burned or pronounced clean. When the walls of a house were attacked the affected parts had to be torn down and carried to a refuse heap outside the city. The remainder of the wall was thoroughly scraped, the scrapings themselves being carried out of the city and the broken places rebuilt with fresh materials. If these means proved insufficient the whole house was demolished and the debris removed from the town. Modern science may have discovered simpler methods of disinfection, but certainly nothing more thorough or effective.

Medicine, W. C. Bitting says, never was a science among the Hebrews. Before the Exodus the hints of medicine are very scarce. For 430 years, however, the Hebrews were in bondage to the most enlightened people of the world. * * * Ophthalmia with resulting blindness was not uncommon (Lev. xix. 4; Deut. xxvii. 18; leprosy was known in all its forms (Lev. xiv. 3; xxvii. 4; Numb. xii. 10, etc.); apoplexy cut down its victims (I Sam. xxv. 37); consumption thrust its ghastly symptoms into family life (Lev. xxvi. 16; Deut. xxviii. 22; Is. x. 16); rheumatism and gout twisted the joints of high livers and perplexed men as much then as to-day (II Chron. xvi. 12; John v. 2, 3); epilepsy threw men into foaming fits (M. R. xix. 17; Luke ix. 38); atrophy of limb produced deformity (I Kings xiii. 4-6; Matt. xii. 10-13). In the matter of treatment, the materia medica was scanty. Balsam (Jer. viii. 22; xlvi. 11) was a favorite drug for external application, probably effective because it was a terebinthinate and therefore antiseptic. Wine because of its alcohol was also an antiseptic.

Purging was in vogue (Prov. xx. 30). Music was used to quiet Saul in his spells of acute mania (Sam. xvi. 16), which is quite in advance of many of our methods of to-day.

The history of the Hebrew race is singularly free from epidemics. Diet was carefully regulated. Pork was forbidden. To eat blood was a crime. Everything had to be washed before being cooked (Mark vii. 4; Lev. i. 9). Bathing was compulsory on those who had touched a leper, or those with any issue or flux, or who touched anything that the diseased had touched (Lev. xv. 1-13)—indeed, they ought to have been the cleanest people on earth.

The sick were isolated as far as possible (Lev. xiv. 33-45). The lepers were kept outside camps and cities and away from the highways (Lev. xiii. 45, 46); the house in which leprosy originated was entirely demolished (Lev. xiv. 33-45); a little loss of real estate was cheerfully suffered rather than endanger the public health.

Even the very spoils of war as well as the soldiers were to be disinfected before entering the camp after battle (Numbers xxxi. 21-24). What was not inflammable must be bathed in fire to cleanse it and everything else had to be washed in water.

The Egyptians, says Herodotus (Vol. ii. Chap. 42), were particular in preventing anything remaining above ground which by putrefaction could taint the air; and this was the reason of their obliging every town to embalm whatever died there.

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The Greeks were evidently familiar with the purifying nature of *sulphur,* for Homer makes Ulysses say: "Bring me, old woman, sulfur—the remedy for impurities—and bring me fire that I may fumigate the palace."

From all of these instances, and more that might easily be added, it would at first seem as if the discovery of new medical truth were almost hopeless. So much of our new knowledge is old, so much not true, that the common practitioner feels discouraged in any attempt to make additions to the existing body of truth. But to me, the lessons of these things cited are most encouraging, and should inspire the simplest mind with hope.

1. The plainest moral to be deduced is that a large deal of the ancient wisdom is really wisdom. It has been an egotistic habit to republish the nonsense and quackeries and superstitions of medical history as conceited proofs of how superior we are to our forbears. This was as foolish as it was untrue. We are not so mightily superior as we think. When we are really so we shall not boast nearly so much. Neither have we by any means learned all that the ancients and barbarians have to teach us. Modern armies and cities could still learn a great deal from Moses, one of the greatest men, and certainly the very greatest sanitarian of all history. And just at the present time one cannot help feeling that the old, unused truth is often of more importance than the new one. The death-rate is twice as high as it would be if we should give society the benefit of the medical truths discovered long ago but which in our rage and race for new discoveries we have disregarded. We most urgently need the rediscovery and the practical use of the old truths.

2. It is remarkable that savages and barbarians have learned so many great medical truths and are so successful in the treatment of their diseases. With all their neglect, superstition, ignorance and crudity they have managed to get hold of many important verities, especially in things that do not appear on the surface of their lives, and are not observed by the superficial traveller.

3. We are also incited by our illustrations to a more keen observation of the common people about us, even of old women and quacks. Even these have their uses, and are not altogether without perception of medical facts. No less a person than Professor James of Harvard College (and he was educated as a physician) opposed the passage of a medical practice act in Massachusetts, because he thought it might prevent the discovery of new medical truths by the people. I think he was ludicrously stupid, but he does not think so. There is nowadays little danger of the loss of new truth by the elevation of the educational standards of the medical profession. Genuine education teaches us that undiscovered truth lies all about us, and that the lowliest may not be scorned. Every eager and genuine student must necessarily be a discoverer. No disease has been exhausted. It still has secrets, and we should not fear the silly sneers of the over self-satisfied, who rail at empiricism, for empiricism has given us our most valuable discoveries in medicine.

4. And the method by which we are able to make these discoveries is by careful and accurate observation. * * * We are prone to leave this method to the professional sci-

entists and discoverers—and even, alas, to the quacks and scamps.

"One of the greatest losses in medicine," says T. Lauder Brunton, "is the loss of individual experience. Men, most able and successful in the practice of their profession, die and carry their knowledge away with them. Some men record the cases they have seen, but comparatively few are able to record their experience in such a way as to make it thoroughly available for others. Science takes each contribution and gives it to all." An admirable example, further continues Brunton, of the application to medicine of the method of "tracking" (method of Zadig) used to be told by Dr. Milner Fothergill:

> A surgeon, Mr. X., wishing to see the working methods of a celebrated quack, desired of the latter to be present some day at his office. The quack, much flattered that so great a man should patronize him, readily acceded to his request. Shortly after Mr. X. had taken his seat a woman came in with a bottle of urine which she handed the quack. He looked at her, then at the bottle, held it up between him and the light, shook it and said: "Your husband's?" "Yes, sir." He is a good deal older than you." "Yes, sir." "He is a tailor." "Yes, sir." He lives at Scarcroft." "Yes, sir." "His bowels are obstinate." "Yes, sir." "Here," handing her a box of pills, "tell him to take one of these every night for a week, and a big drink of cold water every morning, and he will soon be all right."
>
> No sooner had the woman gone out than Mr. X. turned to the quack, curious to know how he had made out all this. "Well, you see, she was a *young* woman, and looked well and strong; so I guessed the water was not hers. As I saw she had a wedding ring on her finger,I knew she was married, and I thought the chances were it was her husband's water. If he had been the same age as she was, it was hardly likely he would have any illness, so I guessed he was older. I knew he was a tailor because the bottle was not stopped with a cork, but with a bit of paper rolled up and tied around with thread in a way no one but a tailor could have done it. Tailors get no exercise, and are therefore apt to be constipated. I was quite sure he would be no exception to the rule, so I gave him 'opening pills.'" "But how did you know she came from Scarcroft?" "Oh, Mr. X., have you lived so long in Leeds, and don't know the color of Scarcroft clay? It was the first thing I saw on her boots when she came in!"

5. And it was not only the intellectual, the learned, the laboratory worker who can discover the new or rediscover the old. There is even more chance for the busy daily practitioner if he will only keep his eyes wide open and not be swayed by custom and fashion from seeing the hitherto neglected, and from ferreting out its ignored or unsuspected significance. * * * And there is a perfect reason why to the end of time the individual discoverer can never have his opportunity taken from him. It is because every organism, every patient, differs from every other in the world. The protoplasm of every one's body differs in chemical construction from that of every other. Each master's footstep is known by his dog, its scent being different from that of every other footstep in the world. Albumin has never been correctly analyzed, never analyzed twice alike. Each patient's disease is therefore peculiar and individual. Our large classes of disease are only rough generalizations, as each nation and race will have its typical protoplasm; thus all true discoveries and treatments must be individual, and the *science* of medicine can never conquer or render negligible the *art* of medicine. When our therapeutics become absolute and certain each patient must be treated differently. All the general truths and theory can never discover all the truth of the individual case.

6. And not only may we in our pride unsafely ignore the lay-world, far removed in time, space or culture; we are just as wrongheaded if we think there is not a subtle and even splendid medical wisdom in physiology and pathology, in the mechanism's adaptations, the healing powers and the teleologies of the tissues and organs of all living bodies. * * * Much of modern medical laboratory science is an attempt to rediscover the methods Nature has taken to prevent or cure disease by secretions and devices whose intricacy and ingenuity astonish us. The advance of serum therapeutics and the use of the extracts of the ductless glands are instances.

Viewed simply as a machine for the utilization of force, every animal body is vastly superior to man's most perfect engine. In the steam boiler and engine from one-quarter to three-quarters of the heat is wasted, and in our fireplaces and stoves about 90 per cent. In our lamps but a small fraction of the energy goes to the making of light. If we could make light as inexpensively as the glow-worm and fire-fly! If our electric machines were one-tenth as perfect as that of the electric eel!

And if this is true to the physicist, how much truer is it to the physiologist, the physician and the pathologist! The Deity of biology and of therapeutics long ago discovered the methods of cure and of the prevention of disease which we are slow in working out with our most advanced science. He calls each of us to be His co-worker!

* *

GOOD COMPLEXIONS.

Women of the stage have, almost without exception, the most beautiful complexions, yet they use cosmetics very often and very freely. Why is this? It is because they know the value of keeping the face scrupulously clean, and they are not afraid of warm water, and all injurious materials are carefully removed with cold cream and afterward washed with warm water and powder dusted on.

Just how the face should be washed is a question upon which many women differ. Some find the purest soap an irritant, others declare that the simplest cold cream is equally disastrous. Those whom we have questioned in regard to the subject (who had lovely complexions) say that tepid water with a pinch of borax in it cleans their face without injury. Some, however, say that borax is drying to the skin, but it may be because they have been unfortunate in getting the adulterated borax, with soda; its corrosive qualities will have bad effect upon the skin of course. Use the pure imported white castile soap if you live in a city where the smoke and atmospheric dust make soap a necessity. The complexion is much improved by using a complexion brush. Patti, who is past fifty years old, has a complexion like a child, beautiful and soft, with a swift color coming and going. She says hard water is fatal to a good skin, and she uses pure borax in her bath water so as to soften it and purify the water. Bathe the face at night with a complexion brush, or a wash cloth of Turkish towelling, using pure castile soap; following the scrubbing with cold cream.

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"Puck's" Philosophy.—Jokes when you see the point are always much funnier than those where you feel it.

When doctors disagree, they call each other quacks, and often they are right.

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Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

A STUDY OF FOOD IN HEALTH AND DISEASE.*

By W. E. Alexander, M.D.,

Philadelphia, Pa.

The appetite is a dangerous guide to trust. In health it may be deceptive, and it is certainly so in disease. It gives no clue as to the amount of material wasted and the quantity of food thereby required to make up for this waste. It is necessary to look for other criteria in order to find the amount of material wasted by a patient in order to determine how much food he may require. This is a very puzzling question, and has been partly explained from the study of biology and partly from clinical experience.

It is a common experience of mankind to notice that the amount of food eaten by a person in good health does not necessarily correspond to the size or the weight. For example, a delicate, slender person may be a very hearty eater, while on the other hand, a stout person may eat scarcely enough, as the phrase goes, "to keep a bird alive." Thus, it is seen at once that the amount of food consumed is no criterion to the amount wasted.

Von Noorden, of Frankfort, has gone into the subject very thoroughly, and his experiments and conclusions are as clear as anything we have upon this subject. According to this authority, he believes that investigation has followed the wrong clues; that it is necessary to determine the amount of material wasted rather than the amount of food introduced into the body, and that the amount of food introduced is adjusted and regulated accordingly; and, if this were not so, the equilibrium of nutrition would be disturbed. Von Noorden believes that the reverse never takes place; that the supply of food received by the body controls its waste. This is a fundamental rule of biology to which there is no exception. In former times it was thought that the loss of appetite was a sign that nature did not require as much nourishment. Nowadays we have learned differently.

Taking up the subject of material wasted in disease, we find at once that there is less wasted normally than in health for many reasons. In the first place, when a man gives up his regular occupation his muscles do less work, owing to his confinement in bed; also, when the loss of body heat is restricted from sojourn in a room of even temperature or in bed and owing to the lack of regular stimuli reflex irritation is diminished, then the amount of decomposition within the body becomes considerably less. It has been estimated that the amount of oxidization of a person moving about freely and performing light work is about 20 per cent. greater than it is in the same person confined to bed, or even to indoors. If the person has been used to hard manual labor this difference may extend even to 60 per cent. The amount of decomposition in the ordinary person is regarded as equivalent to about 38 calories for each kilogram of body substance. Therefore in disease the amount corresponds to only about 32 calories per day.

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* *Med. Times.*

These rapid external influences govern a patient in disease; but we must not forget that the disease in itself may produce certain changes in metabolism. In the first place many diseases diminish the amount of oxidization. This belief was formerly held as regards chlorosis, diabetes, cancer and diseases of the organs of respiration and circulation. But nowadays it is considered that metabolism in these diseases goes on at about the usual rate. However, it seems a fact that in every disease there are times when the amount of material waste is extremely diminished. This period is uncertain and not clearly demonstrated by the experimenters. In other diseases, however, metabolism is undoubtedly increased beyond the normal. Such conditions are fever temperatures, and accelerated and altered respiration.

All these conditions bear upon the nervous force and produce waste of oxidizable material, and therefore require an increased supply of nutriment to keep the conditions normal.

Again, there are a number of diseases in which the food is improperly absorbed from the stomach and the intestines. Therefore, in these cases, as a man thrives on what he digests there is more or less food required to make up for the body's waste.

Again, in some conditions, such as diabetes, part of the oxidizable material which is absorbed leaves the body only partly oxidized and therefore these cases require more food than during health to preserve the proper balance.

According to the experiments of Von Noorden, the most practical results are obtained by the bedside and the weight should be made the judge as to whether sufficient food is given to make up for tissue waste.

Von Noorden believes that the question of the quality of the food is not of as much importance as the quantity. He believes that too much attention is paid to permissible and non-permissible foods and the elimination of this and that article of diet until ridiculous petty distinctions are made in the subject of diet. He thinks it is far better to pay attention to the subject of quantity. Here is the place to study the relations between income and expenditure; between food and work; between the nourishment introduced and the maintenance; the increase and the decrease of bodily substance. If it is possible to keep track of these figures it is then possible to settle the question of diet, learning first how much a patient requires and how much he is to eat. The question of what he is to eat is, of course, of great importance in certain diseases, such as stomachic or intestinal diseases or in diabetes. But in the great majority of cases it is a matter of quantity.

With this introduction I will present a study of several cases to illustrate the treatment of cases of disordered digestion and assimilation which may be of interest to the profession.

The first case is that of a woman, married, and with a child a year old. She has lost some 20 pounds in weight, and yet her pulse, temperature and physical condition seem to be normal. She has no signs of cough or of any organic disease. She suffers much from acid eructations after eating and several times a week she has paroxysms of pain extending through to the back. Occasionally she vomits, but not regularly. She is constipated, but the urinary secretion is normal upon examination. She had been ordered by different physicians to take malt liquors to increase her strength and she undoubtedly has received occasional relief from their use. She has tried all kinds of foods but without any special results. Taking up the study of her case we find that her condition depends, not upon the sort of food that she eats, but upon the condition of her blood and her stomach. Therefore, our idea is to get her stomach and blood into good condition and to encourage the oxidization of her food by the use of fresh air and to give her bland food and such medicines as will allay the irritability of the gastrointestinal tract.

An excellent form of prescription in these cases is the use of carbolic acid with a fluid extract of cactus grandiflora as recommended by Davis. Good milk with warm water, and milk with egg, and flour gruel are also excellent as an unirritating food taken in small, frequently repeated doses. With this, the patient should have fresh air and should abstain from the use of alcoholic liquids.

The next case of this sort is that of a man of middle age. He is very stout and has taken but little exercise for many years. He is a moderate drinker, but rarely has become intoxicated. As a result he has increased shortness of breath and rapid pulse. With this he has the history of rapidly increasing indigestion, which is shown in a sense of fullness of the stomach after eating followed by gaseous eructations with a sense of nausea and occasional attacks of vertigo. These attacks of vomiting have become more marked of late, until at times they become quite serious in their character, being accompanied with extreme vertigo, numbness of the extremities and much perspiration. On physical examination I find that his condition is normal outside of his great weight. His heart, lungs and kidneys seem in fairly good condition.

Undoubtedly it has been the habit of this patient's life which is at fault. He has taken less oxygen through the medium of the lungs than was required to keep his system in condition. In addition, the constant use of alcohol has decreased the affinity of the blood for oxygen and therefore the carbonaceous products have not been fully oxidized, but have accumulated as fat, adding nearly 100 pounds to his weight. These attacks of vomiting seem to be conditions of vasomotor depression. It is by the removal of the cause of his condition and the careful induction of hygienic measures that we hope to be able to restore him to proper condition. We must increase his vasomotor and cardiac nerve force. We must improve his gastric and intestinal digestion and endeavor to obtain a better condition in his blood. Such treatment would necessarily produce slow results and relapses can be produced by such trifling causes as to make the treatment at times discouraging. In the first place, it is better to cut off at once the use of all alcoholic liquids, even down to the mildest form of beer, for undoubtedly alcohol impairs the functions of the blood, while it also depresses the respiratory and vasomotor nerves. In place of the alcohol he should take a mildly stimulating diet in moderate quantities. Such a diet consists of light, twice-baked bread, good milk, meat broths, the simpler forms of fish, and if these are well borne, tenderly cooked meats and vegetables should follow. He should take plenty of outdoor exercise by riding and later by walking and a mild form of home gymnasium to encourage the absorption of more oxygen. The use of some tonic, such as strophanthus and nux vomica, or strophanthus and nitro-muriatic acid, are excellent in these cases, and it is surprising what can be done for this class of patients.

If such a patient will follow carefully the treatment outlined for him, he will lose rapidly in weight and will find that his respiration and circulation will improve. The most discouraging feature about these cases as a rule is, however, that they have either lost the desire or the ambition to follow out this treatment, or else they become very rapidly discouraged. The condition of life into which they have fallen is a matter of growth of years, and as a rule it is like the formation of bad habits in other respects; it requires a strong effort on the part of the patient to effect a cure. The physician can stand behind to encourage, stimulate and guide his patient, but the larger portion of the work must be done by the patient himself.

Undoubtedly the use of mild gymnastics in these cases is of excellent effect, and nothing is better or easier to follow than the system devised by Checkley. This authority has devised a system of natural gymnastics in which the exercising is done, not for strength or especially for vigor, but for health, and if it is followed out even to a slight degree it is astonishing what results can be obtained. It is well for the physician to talk seriously to these classes of patients if necessary to stimulate them to do this work. Many patients regard the use of gymnastics at their age of life as nonsense, or as a fad, and therefore if the physician can impress them that they are in a moderately serious condition, from which they can be rescued by the use of these exercises he has done his patients a great favor. Many physicians are apt to shirk this duty for this class of patients is opinionated and very set in their ways; but it is astonishing what can be done even in the most unpromising cases. I remember well a case in which a gentleman who had been a hard outdoor worker for many years, suddenly by the death of his partner, was thrown into the most severe nerve racking office work, looking after accounts and directing the duties of a large clerical staff. In the course of a year or two he became very irritable, very nervous; his digestion was completely upset; he suffered from real and imaginary ills, until it was almost impossible for him to endure himself or for his family to live with him. When these mild gymnastics were first suggested to him he laughed at them as a modern fad; but, being persuaded to try a few and receiving good results, he gradually got into the habit of taking them and the improvement in his condition in six months was so marked that it was noted by all his friends and business acquaintances. In this case the incentive to work and regularity was contributed by the report which I compelled him to make of the days on which he exercised and the time which he put to it. By making him keep this diary I was able to get him to practise with moderate regularity.

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"Honor and fame from no condition rise;
Act well your part, and then go advertise,
Just so. Let all the ends thou aims't at be
To make the public buy their goods from
thee."

WHY DO WE SLEEP? WHAT ARE DREAMS?

By James D. Ferguson, M.D.,
Manchester, N. H.

Some one recently said that notwithstanding the almost universal dread of dying, every one, once in each twenty-four hours, yields gladly, or at all events, without shrinking, to sleep, which in all respects resembles death, except that the latter knows no waking.

The immediate cause of sleep, as likewise its object, is still an unsolved problem, and will, I think, ever remain an open question for thought and discussion. It is contended by some authorities that "In the invasion of sleep, the senses first experience its inroads; the sight is dimmed, and the eyelids close; the taste, smell, and hearing are suspended; and lastly, touch ceases to be exercised. The internal senses, as hunger, thirst, and pain, are in like manner suspended. The intellectual and moral faculties suffer the same oppressive lassitude, their exercise becomes languid and painful; the ideas, dull and confused, are formed with difficulty, and without connection; thought is at an end; a species of reverie, or rather delirium succeeds; and finally, every act of the mind is suspended; perception and consciousness, the internal evidences of existence, cease; organic life alone is manifest; animal life for a time has terminated. The act of sleeping resembles, and is in reality, a rehearsal of the act of dying." Now, as I do not endorse the above in all the fullness of its meaning, I shall further on advance and express my belief and opinion.

Dreams "are an intermediate state between sleeping and waking; imperfect consciousness continues, but the faculties are sluggish, and attention is dull; complete suspension of all the psychological operations does not exist, some continue in activity, or awake; ideas are formed and consciousness is not entirely absent. From this state of imperfect sleep and partial repose of the intellectual and moral faculties, proceed dreams."

Dunglison defines sleep: "A temporary interruption of our relations with external objects, a repose of the organs of sense, intellectual faculties, and voluntary motion;" and dreams: "A confused assemblage, or accidental and involuntary combination of ideas and images, which present themselves to the mind during sleep."

In that great, grand Book of all books, the following passages are found: "And my sleep was sweet unto me;" "Yea, thou shalt lie down and thy sleep shall be sweet;" "In thoughts from the visions of the night, when deep sleep falleth on men;" "For in the multitude of dreams and many words, there are also divers vanities;" "Your old men shall dream dreams, your young men shall see visions," etc.

It is a well-established law of nature that sleep is absolutely essential to the existence of all mankind; the loss of it seriously impairs health, and existence is often shortened; but to enjoy the blessings of "tired nature's restorer," no one should attempt to get to sleep immediately after a full meal nor with an excited and disturbed mind, for to sleep well and enjoy perfect repose, all gloomy or depressing thoughts should be banished. The duration of sleep is not uniformly the same with all persons; some require more than others. The time requisite for the reparation of the functions of relation is said to be from six to eight hours. Thus sleep occupies nearly a third of life, and he who has reached sixty years, as it respects the operations of the psychological faculties, and including the time of infancy, has not lived more than twenty years. Infancy and old age demand longer periods of sleep, and females sleep more than men. Napoleon slept but little, and Caligula, it is said, but three hours out of the twenty-four. The celebrated John Wesley says that for a period of more than sixty years, he was in the habit of going to bed at ten and rising at four, and that he had six hours of uninterrupted sleep, which he considered to be sufficient for his own health; he, however, very properly remarks that invalids and persons of delicate constitution, and those accustomed to much bodily fatigue, may require from seven to eight hours. Of abnormal somnolence, the following is from the pen of M. Lasègue:

"A barkeeper was often taken with an irresistible desire to sleep while serving his customers, and putting his glasses on the table slept for a few minutes. A porter in a glass merchant's would stop in the street, lean against the wall with his basket on his shoulder and sleep, then, waking in a few minutes, would rub his eyes and go on his way. A young farmer was out hunting, when he sat down in a field and went to sleep, his companions being unable to awake him. He awoke in five or six hours, but the next day he went to sleep at the same time, and ever since has done so every day. This was a hypnotic sleep, which could be brought to an end by blowing on the face. A young girl went to sleep always at eight o'clock, day and night, with or without a clock. A Belgian countess went to sleep regularly at nine o'clock, whatever she might be doing, and remained until the following day in the position she then occupied. Her catalepsy was joined to hypnotism. She recovered after two years."

Dr. Gibbons Hunt, on one occasion said, that he thought "sleep was only a lazy habit we had got into;" but I think that even if we leave out altogether the evidences from the lower animals, the phenomena of plant life would be sufficient to convince us that organized nature requires rest. Nevertheless sleep is certainly much under the control of habit. Many of the readers of the Journal doubtless have heard the story of the miller who was very sick, and for whose comfort the mill was stopped. But he was unable to rest quietly except under the influence of the noise to which he was accustomed, and the mill was again started. It is in fact a matter of common observation and experience that the most violent motions or sounds will not wake up a sleeper if he is accustomed to them, and for this reason some sleepers do not wake up during a thunder-storm, the ringing of bells, a passing train of cars, or by the conversation of members of the family, but will awake quickly at a change of noises.

There is a funny story related of an Irishman, and many good stories are peculiar to that class, who, on being told that a severe storm had occurred during the night, said to his companion, "Why did you not wake me up, for you know I can't sleep while it thunders."

It is asserted that the sensitive plant, so-called from its motions imitating the sensibility of animal life, if carried in a railroad car or any other kind of vehicle, will at first close up under the influence of the jolting motion, but will eventually get accustomed to it, will open, and then close when the motion is suddenly stopped.

But the momentous question, What is Sleep? I come now to that point where I beg leave to differ somewhat from the quotation in the commencement of this article. Sleep, in my opinion, does seem to be merely an interruption of the relation between consciousness and sensation, and is not an entire suspension of either of these functions, for I believe that to some extent we smell, taste, hear, and feel when asleep, and the reason that we do not see is simply due to the fact that our eyes are closed, and not to any positive suspension of their powers. Vision is the only sense which we are able to fully interrupt by special mechanism; we cannot shut our ears, our noses, our tastes or feelings, against unpleasant sensations, and it has often been the expressed wish of many, "Oh, if I could only shut my ears as easily and completely as I can shut my eyes, what a satisfaction it would be."

But to return to the subject, we know that consciousness is not wanting in sleep, because dreams are evidences of its power; it must then appear that there is simply an interruption of the relation between these two functions, and the act of waking is simply the restoration of the normal relation between them. In true anæsthesia the influence is more profound; the activity of both sensation and consciousness is diminished; as under the influence of anæsthetics the sensations experienced are, so far as impressions go, very different from those of naturally going to sleep or awakening.

As a general rule persons do not sleep well in a change of beds or in new places; this may be due to an unconscious influence of the instinct of self-preservation, the mind being in a temporarily alarmed state. There may also be something in the position of the sleeper in reference to the points of the compass; some persons think they can sleep best with their head to the north, and others to some other point. If the view that sleep is a break between sensation and consciousness is correct, then we should expect that as we awake this relation is gradually restored, and we may have a confused or mistaken interpretation of consciousness, which we call a dream. It is doubted by some, and I incline to the opinion, that dreams do not occur during a profound sleep; many think that they only do occur at the moment of transition from sleep to waking, or vice versa, circumstances that may cause dreams. If, for instance, by some accident one's foot should get uncovered during a cold night, the sensation of cold would be finally sufficient to push its way through the dormant brain cells until the consciousness was reached, and then might come an imperfect perception, which the mind would refer to some cause known to be capable of producing it; thus the person might dream he was walking on ice. I lean to the view that dreams are never out of the sphere of our experience, that nothing is ever revealed to us through them, and I am sure that often they do not represent the most important topics upon which the mind may be engaged. Sometimes we dream (though somewhat disconnected) of our daily duties, and very often of secondary matters. Dreams present some features which seem to be common to all persons. It is not an uncommon thing, especially with women, to dream of being naked in the street. This is obviously the result of circumstances under which they retire. If they went to bed fully dressed, such dreams would be rare. It is not an uncommon thing to dream that one tries to run and cannot. This I believe is due to the recumbent position, the usual stimulus to the soles of the feet is missing and the pressure of the bedclothes upon the lower limbs gives a sensation of restraint, which makes us think we cannot run. Such dreams, I think, always occur when we are nearly awake. Sometimes we hear persons say that a dream occurred long after they got asleep or long before they got awake, but I doubt whether they can tell anything about it. If dreams do ever occur during a profound sleep, they are purely subjective, that is, they arise from influences entirely within the body. Such are the dreams produced by indigestion, disordered blood, etc., and are not the result of impressions on the senses proper, though even in such dreams it is not improbable that for the first effect of the subjective influence to partially wake the sleeper and then produce the dream.

There is nothing more desirable than a good, sound, refreshing sleep, and if there is any preventive of dreams, it is found in good health, a clear conscience, good digestion, and absence from all exciting and stimulating causes.

Some interesting experiments on this subject were made by Delaunay. According to psychologists, dreams are generally illogical and absurd. Delaunay, however, by covering his forehead with a layer of cotton wool, rendered at will his dreams healthy and intelligent. According to his experience, the dreams which people have when lying on their backs are sensuous, agitated and erotic. Those which occur when the dreamer is lying on the right side are changeable, full of exaggeration, absurd, and relate to old recollections. Those which occur when lying on the left side are intelligent, reasonable, and relate to recent occurrences. People often talk during the last mentioned dreams. The author considers that dreams, intelligent or otherwise, erotic or sober, can be induced by causing variations in the cerebral circulation, and by the nutrition of the various regions of the brain, either by the elevations of the cranial temperature or by decubitus. They, therefore, form an interesting field for psychological research. Much of the above, in my opinion, is dubious. Atkinson, after describing the nervous manifestations of sleep, and especially "night terrors" in children, says:

"The treatment must be directed to the avoidance of the causes, as fright, shilly-shines, sleeping without a light, injudicious feeding, the relief of constipation, the use of abundance of fresh air and exercise; the latter even to the point of approaching fatigue, so that the child may sleep soundly without dreaming; and the employment of nervines and tonics, preferably those containing phosphorus and iron."

The further consideration of the subject of sleep and dreams, recalls the words of the poet Armstrong. He says:

"Great Nature droops
Through all her works. Now happy he whose toil
Has o'er his languid powerless limbs diffused
A pleasing lassitude; he not in vain
Invokes the gentle Deity of Dreams,
His powers the most voluptuously dissolve
In soft repose; on him the balmy dews
Of sleep, with double nutriment descend."

Hence I may well add to the foregoing sentiment that "tired nature's sweet restorer, balmy sleep," under no circumstances can be dispensed with. Both the body and mind enjoy (as we would say in our school days) a glorious vacation, by which the thoughts of the mind, the labors of the hand, and our weary limbs, would secure the needful rest for a few hours, to prepare and fit us for life's duties on the following day.

To introduce sleep into our bodies, God has drawn around us the curtain of darkness, and as we repose upon our beds, our senses, under the influences of peace and silence and conscience, hear the still small voice whispering to our hearts, "He giveth his beloved sleep." When we retire to our beds for rest, the mind should be gentle and serene; business thoughts and gloomy ideas should be avoided, because these, if pondered over, will greatly interfere with the refreshing influences of sleep. When sleep has performed its duty under the influence of a good conscience, the incoming dawn and daylight gleam through the windows, and we regain all our mental, moral, and bodily faculties renewed and regenerated. Hearing, seeing, smelling, tasting and feeling, all improve, every sinew braced for its accustomed work, and our affections reinvigorated with benevolence and charity.

But in the night through which we have passed we had dreams, producing impressions on the memory. They are a kind of vision in sleep, an idle fancy, a groundless suspicion; to which I may add that dreams are not of divine origin, but are self-formed. Do you ask what share you have had in a pleasant sensation of dreaming? I reply, precisely the same that it has had in the coursing of your blood through your arteries and veins, in the pulsation of your heart, or of your brain.

As I am now treating of things which take place during the night, hence let me suggest a few thoughts. Do not uneasy and horrible dreams denote pain either of body or mind? or, in other words, a body overcome with food, or a mind occupied with melancholy ideas when awake? If this doctrine is true, based upon the principles of sound philosophy, then we must arrive at the irresistible conclusion that dreams are produced by some excess, either in the passions of the soul or the nourishment of the body. Hence we conclude that nature very properly punishes us by suggesting ideas and making us think how derelict we have been in not living a more acceptable life.

This question necessarily opens up for contemplation the subject of spectres and manes, of prophecy and prediction, but which I have no inclination to enter upon.

Petronius, a writer of antiquity, says that dreams are not of divine origin, but self-formed; and I will only add that whatever view we take of the question, whether the memory impels the brain, and the brain acts upon the soul, I think we must admit that our ideas come in sleep independently of our will.

Before concluding this subject, I desire to allude to one other topic, which, I think, is worth considering. Our ancestors of the Middle Ages slept naked. We surely have improved on that habit, but there is still room for more improvement to insure our personal comfort and good health. It is my opinion that when the time arrives to prepare for our night's rest, we should, if circumstances will allow it, have a complete night sleeping suit, of warm shirt, drawers, and stockings, which should fit us as well as our day clothes. The recent custom of men wearing pajamas at night seems a step in this direction. In our houses a room should be provided which could be warmed during the early evening, and in this room every member of the family could dress for bed, and to it they could come in the morning and change the dress. When all were up and dressed, the room could be opened, and the night clothes thus aired. Such a system would give great encouragement to the ventilation of sleeping rooms, the want of which is fertile of disease.—*Mass. Med. Journal.*

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STORIES OF RECENT FASTS.

THAT many persons have gained in health by eliminating, or practically eliminating, the morning breakfast, seems an established fact, writes Anna Woodward in *Good Housekeeping.* Those who are more radical in their trials have begun by fasting entirely, for a period of from seven to thirty days. An experience which has attracted much attention is that of the editor of one of the health magazines of New York. This man went through a thirty days' fast about two years ago, and from that time to the present has usually had two very light meals each day. Never more than two, and sometimes but one. He weighed, when beginning his fast, one hundred and ten pounds, and has since told the writer that he had at that time much sickness; was, in fact, an invalid. At the present time he weighs one hundred and sixty pounds, is robust in every way and declares emphatically that he is proof against any form of disease, whatsoever. He says that before the thirty days of fasting was over, his skin took on a clearer hue than it had worn for years; his eyes grew brighter, his hair was in better condition, and his teeth, even, became noticeably whiter. On the twenty-fourth day of his fast he took a prolonged mountain walk with several companions, neither showing nor feeling more fatigue than they.

A girl whose home is in Morgantown, West Virginia, tells me that although up to last summer she had always been an omnivorous eater, she at that time became converted to the modern theory, and began in a practical way by taking in August two weeks' complete fast, during which time she swallowed nothing but a little fruit juice. She then began to adopt an extremely light diet, to her advantage from the point of economy, since by preparing her own meals instead of boarding she effected a saving of from six to seven dollars a month. But the consideration of primary importance was not the pecuniary but the physical gain. She at once began to enjoy health such as she had not known for years. For several years previously her average weight had been about one hundred and twenty-four pounds. During the two weeks' fast she lost fifteen pounds. The first week thereafter she regained ten pounds and after that she gained at the rate of three pounds a week, until she reached one hundred and thirty-nine pounds —more than she ever weighed in her life before. This girl is engaged in taking a university course and there is living with her a friend who is a teacher in the public schools, this friend living also on the same plan. They eat no breakfast, taking in the early morning a glass of hot lemonade. Lunch consists of two slices of brown bread and butter and a little fruit. The evening meal, though more substantial, is very simply cooked. Soup and one other dish form the usual dinner. The second dish consists sometimes of a baked potato or baked apples, sometimes of dried fruits stewed, sometimes of a cereal and milk. They take never more than these two simple dishes, in addition to brown bread and milk, celery and occasionally onions. The main point is that they enjoy their eating as they never did before, they have improved in general health and incidentally there has been the saving of time and money.

* *

DIETETICS.

Hutchison (*Lancet,* April 25, 1903) offers the following facts in regard to the principles which should guide the physician in the dietetic treatment of renal disease: He says that he would draw a sharp distinction between acute and chronic cases. In acute nephritis, especially so long as blood is present in the urine, an exclusive milk diet is, by common consent, that which gives the best results. Although clinical experience is quite conclusive on this point, scientific explanation of the advantages of milk is not yet forthcoming. To some extent, of course, it acts as a diuretic and it has the advantage of being free from those extractive matters which meat contains, and which appear to be irritating to the kidneys. The fact that milk is an intestinal antiseptic may also help to explain its suitability, for under its use products of putrefaction such as the ethereal sulphates which are normally absorbed from the bowel and excreted by the kidney are greatly lessened. A patient with chronic renal disease must maintain a vigorous heart, for if his heart fails his blood pressure fails, his urine becomes scanty, and he is apt to pass into uremia. But a vigorous heart cannot be maintained on milk alone, and, as a matter of fact, in one patient so affected cardiac failure was beginning. Hence it is that in chronic renal disease meat must not be altogether abolished from the diet, although food which contains only the extractives of meat, without its albuminous elements, should be rigorously avoided. Animal food tends to send up the blood pressure, and in cases where the arterial tension is high it often requires fine steering to avoid the risk of an apoplexy on the one hand or cardiac failure and uremia on the other; but the latter risk is quite as great as the former, although it is often forgotten. The fallacy in the case of the patient who ate white meats, but not red, is, as has recently been shown by Von Noorden and his pupils that the white meats are as rich in extractives as red, so that the substitution of the former for the latter in the diet, though harmless, is also devoid of advantage. While treating the subject of fallacies in chronic renal disease, the author indicates another. It is commonly said that even in cases of chronic nephritis in which there is a considerable amount of dropsy, as, for example, in large white kidney, one should allow the patient to drink plenty of liquid in order to promote elimination. Now, it has recently been shown by careful clinical observation that this idea is groundless. Restriction of fluids in such cases does not interfere with excretion, but has the advantage of helping to remove dropsy. One need have no hesitation, therefore, in recommending a dry diet to such patients.

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SCIENCE OF ENERGY.

The province of science is to collect facts, and to deduce from them and their circumstances laws governing them. Some interesting experiments have been recently carried forward by a Belgian savant, M. Solvay, with regard to the production of energy in living bodies. After long observation, careful experiments, and tedious mathematical formulas, he deduced this formula: Energy is proportioned to the amount of food the living body can take in and oxidize. The relation of the energy that can be expressed by the body will be proportioned to the amount of food consumed, less the waste, and the energy retained in the body in the form of heat. The amount left after deducting the heat and waste elements is the degree of mechanical energy the body is capable of manifesting. He demonstrates that energy cannot be obtained from any outside force. Clothing, environment, etc., are merely aids to the assimilation of matter consumed as food. A further interesting theory put forth in this connection by the investigator is that the difference between the intelligent body and the unintelligent is expressed in the economy of energy. The unintelligent will expend vastly more energy than the intelligent along any given lines.

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A CRIME AGAINST PIE.

The far-reaching and malevolent influences resulting from slanderous communications have never been more abundantly demonstrated than in the case of that American institution known as pie. For centuries pie was regarded as one of the cornerstones of the national diet. The family was indeed unfortunate who could not afford to have pie at one meal daily. The substantial middle-class citizen expected to have pie at least twice per day, while the aristocracy prided themselves on their ability to have pie at every meal throughout the year.

In an evil hour some cynical sour-minded Englishman visited these shores and looked on with that envious contempt so characteristic of the unfortunate Englishman when he sees some one better off than himself. He went back to England and proceeded to publish an article in which pie was held up for ridicule, as a source of physical decay in America which promised deterioration of the race. Although science had no part in this denunciation, nevertheless, through some dire combination of consequences, this tirade became published throughout the length and breadth of America. Cranks took up the refrain, and gradually there was instilled into the mind of the American pie-eater a doubt which stealthily invaded all ranks of society, until that national institution of blessed memory—pie—has gradually become associated in the minds of many people as an enemy of mankind.

The ordinary fruit pie properly made is probably about as harmless an article of diet as could well be imagined. As a light dessert following the heavier courses, it produces the satisfaction which properly follows a well-selected meal, and yet multitudes of people have allowed themselves to be persuaded that pie is unwholesome. Such are the natural results of slander. Thus has the open-handed hospitality of America, in which pie took a leading part, been betrayed.

[The average baker's pie deserves the obloquy it has won. Pie can be made that is as wholesome as simple bread and fruit. —ED. GAZETTE.]

* *

BEER, TOBACCO AND LONGEVITY.

PROFESSOR PFLUGER, of the University of Bonn, asserts that the average length of human life is steadily increasing. He maintains that one-third of all the deaths registered in Munich are due to heart disease, brought on by the immoderate use of beer, and that tobacco also claims a large percentage of the victims.

Among 40 centenarians who have come under his notice there was only one smoker, while nearly all confessed to a moderate use of alcohol.

What Professor Pfluger most seriously warns people against is the thought and fear of death. The mind must be occupied, he says, in order to secure longevity. Hard-working men who retire rarely live much longer.

The German census statistics show that in 1871 the centenarians numbered 147 men and 287 women, but in 1900 only 5 men and 30 women.

The above press report is of interest. As is well known, in Munich the consumption of beer *per capita* is greater than elsewhere in the world and the percentage of heart disease is higher. Beer has a worse influence on the heart than either wine or whiskey. Tobacco is better borne by adults and the aged than by youth. No child should be allowed to smoke before the age of twenty-one. Wine has been said to be the milk of old age; it should not be used until past the noon of life. That the German census shows a reduction of old men since the war with France is natural. The age of industrialism, of city life, of strain, of alcohol and of the venereal diseases with increase of tabes dorsalis and general paresis is the present age of Germany as it is of the United States. Only the sedate and the temperate in all things can expect length of days.

* *

IMPORTANCE OF GREEN VEGETABLES.

LORD WILLIAM NEVILLE, the British nobleman, who served a five years' sentence in prison, and has just published a book of his experiences, writing of prison diet, says: "An enormous number of the prisoners were admitted to the infirmary suffering from indigestion in various forms—spots, boils, rashes and other skin diseases, in most cases undoubtedly the result of a diet from which green vegetables are rigidly excluded. Large quantities of vegetables are grown at the prisons, but the prisoners are forbidden to eat the smallest morsel, though their craving for green food becomes such that I have seen men eat all sorts of green weeds, and if they could secretly get hold of a carrot or onion, they would ram it into their mouths, tops, dirt and all."

* *

"A PRIMA facie case is one that is good in front and bad in the rear."

MOST PEOPLE OVEREAT.

A PROMINENT physician in New York was asked by the writer to give his opinion on the subject of eating less than the usual amount of food. His reply was that it is not only possible but convenient to live on two meals a day and upon food commonly considered "light food;" that the usual basis of diet is chemical analysis, but that such means of determination are erroneous. It has been altogether a certainty in his experience, he said, that the misuse of food is the essential factor in the world's human misery, sorrow and crime; adding the comment, that as society is constituted, it is a lonely and generally too difficult task for the layman to disassociate himself from conventional habits of eating, and that consequently he pays the penalty for his mistakes in sickness and premature death. Another leading physician who has watched the cases of a great many people who have secured robust health by eating less than three meals a day, asserted that his personal experience had been the same; that he had enjoyed unaccustomed physical and mental vigor, for a long time, by avoiding the stuffing process and by leading a sanitary life. ANNA WOODWARD *in Good Housekeeping.*

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THE USE OF THE POTATO.

ACCORDING to statistics cited by Waldron in the *Revue pour Tous,* December, 1899, the potato is more largely used in Europe than any other food substance, the average amount annually eaten *per capita* being as follows in the different countries named: England, 242 pounds; Austria, 662 pounds; France, 697 pounds; Norway and Sweden, 739 pounds; Holland, 840 pounds; Germany, 1,298 pounds; Ireland, 1,364 pounds. The *per diem* consumption for England is 11 ounces per day, and Ireland, 3¾ pounds, or nearly six times as much.

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GRAPES IN KIDNEY DISEASE.

DR. PECHOLIER, a French physician, has called attention to the fact that grapes are an excellent diuretic. Five pounds of grapes were given in three parts, and the effect produced was found to be much more vigorous than could be obtained from digitalis, iodide of potash, or milk. Only the juice of the grape was swallowed, the skin, seeds, and pulp being rejected. The patient was suffering from ascites with hepatic cirrhosis. Grape juice can generally be obtained, even though fresh grapes may be out of season.

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THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

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NEW YORK, AUGUST, 1903

HYGIENE BY EXAMPLE.

THROUGHOUT the history of the race and of the world example has always been immeasurably more potent than precept, the best results, whether in theatricals or theology, music or metaphysics, having followed a combination of the two.

Allegorically the woman gave Adam an object lesson in apples, and he immediately proceeded to stumble. Had she merely posted a formal notice, "Beware of the dog," at the orchard gate, it might have been different. Eden might have remained a permanent resort for moral invalids and innocent tourists. Medical men and moral teachers reiterate their rules, elaborate their ethics and hammer away at their dogmas year in and year out, early and late, with indifferent success, because their preaching and their practice is so distantly related. Their standards are so much better than their personal standing that their doctrines fall upon unconvinced and indifferent ears.

We do not feel called upon to lecture the cloth, but how strikingly the foregoing is brought to mind when we investigate the glaring contrast between the universal teachings and the almost universal practice of medical men. Inculcating temperance, many of them are habitual tipplers. Admitting the evils and dangers of the tobacco habit, a preponderance of them are inveterate smokers—a few, but not so few as to be lonesome!—still cling to the more disgusting, filthy and inexcusable habit of chewing. Urging dietetic moderation and regularity, the average doctor is a confirmed and incurable dyspeptic, from reckless carelessness in the selection of his own dietary and utter as well as habitual irregularity in the matter of his meal hours. He advises his patients to eschew pork, himself partaking freely of ham, bacon, head-cheese and sausage. He enjoins his gouty and rheumatic patrons to avoid the fleshpots of Egypt if they would escape the penalties associated with the uric acid diathesis, but himself partakes of broil, roast, steak or stew, three times a day, and perhaps once in the night. He smiles on the women who manage the W. C. T. U., as they wait on him for the moral support of his professional countenance and the material support of his annual subscription—which he reluctantly signs but secretly begrudges; while he belongs to a club that keeps an open bar, and is a connoisseur in wines, whiskeys and cocktails, certifying to order, as to the purity, tonicity and sustaining qualities of Murphy's Sour Mash or Dooley's Pearl Honeymoon Rye--provided the proprietors "see" him properly and keep his cupboard from getting dry.

He is an authority on hygiéne and sanitary science, but makes no protest against spending half the night in a club room or lecture hall that hasn't been thoroughly ventilated in a generation, and in which half a hundred rank cigars are constantly being puffed. He advocates physical culture and muscle development, but himself avoids them as he would the plague, and grows cramped, crooked and ungraceful before he has passed his manhood's prime. He knows all about the value of regular and refreshing sleep, but takes his own doses of Nature's sweet restorer in haphazard installments. He annually subscribes fifty or a hundred dollars toward the support of the leading church in his vicinity, but it is often a strictly business investment, and not at all because he is devout. It would be libellous to join the cynics and say that he attends, if at all, for the express purpose of being occasionally called out during service; but he certainly gives scandalmongers occasion to talk. In fact, he is almost certain to have among his patrons some hysterical hypochondriac who will make it unnecessary to employ an instructed dummy to do the calling-out act. This is not saying that there are not many, in fact a preponderance of clean, upright and conscientious doctors, for there are; but we are not talking about this admirable class. They are shining lights in a naughty world; but even though numerically in the majority, their modesty makes them practically a minority, and among them it must be confessed there are some mere milksops and nonentities. In fact, more's the pity that the naturally "splendid fellows" are often the very ones who take to dirt and go to the dogs, simply because there's a screw loose in the matter of their personal habits.

This is less to be wondered at when we remember that a great many women, women, too, of culture, taste and social position, quietly tolerate if they do not openly encourage their sweethearts, husbands and male acquaintances in their pet indulgences. Their sideboards are always stocked with reputable brands of bottled goods, they put brandy in their mince pies, wine in their jellies, and whiskey in all their summer drinks. They present their present and prospective lords with beribboned boxes of fragrant Havanas on their birthdays and at Christmas time. A few of them also—let us try and believe it is only a very few—join them in their oblations to my Lady Nicotine.

In a much more literal sense than is generally admitted men are what women make them, and there is no disputing the fact that the pernicious, enslaving, slovenly and utterly indefensible habit of smoking would be made to bar a man from cultivated society, before the passing of a decade, if it were not countenanced and encouraged by women. Society women of to-day—at least a majority of them—look upon the indulgence as one of the male privileges, if not an actual amenity. Formerly smoking was done outside the house, or was tolerated only in the kitchen, the library, or in some one room quite separated from the rest of the premises. Then, those to whom the penetrating odor of the weed was obnoxious could avoid the smoker's den and protect themselves from all but homœopathic doses of nicotinic acid. Now, the smoker is monarch of all he surveys, smokes in every room in the house, until from hall to garret, parlor, dining-room, and even sleeping apartments reek with the absorbed and persistent rankness. In time the non-smokers of the household become acclimated to a degree and cease to rebel. Some women, whose refinement in a general way is unquestioned, gracefully insist that they "love the fragrance of a *good* cigar." Others apparently consider the indulgence a fair offset to their armful of pet poodle, pug or skye terrier.

And this brings us to another instance of lacking or rather degenerate example. No doubt there are dogs whose breath is sweeter and whose brute kisses are quite as free from taint as are those of the smoke-saturated husbands; but this pet dog outlet for caresses and affections that legitimately belong to human friends, lovers, husbands and children, is at best but a morbid and unnatural makeshift. These dog worshippers generally refuse to bear children, or else turn them promptly over to a hired nurse, substituting a sore-eyed puppy for a human baby! In such families all the finer sentiments either go up in smoke or are tied with pink ribbons about the hairy necks of the pampered beasts that these unnatural mothers hold in their unmatronly laps. We preach civilization, culture and Christianity, and then exemplify our preaching by an exhibition of these selfish and sensuous surrenders of manliness and womanliness. The wife of the confirmed smoker is justified in feeling neglected. He soon reaches a stage when the curl of the smoke from his fragrant cigarette counts for more than the caress of his wife. He cannot wait an instant for his tranquillizing narcotic; next week or by and by will do for her. And so she diverts her unappreciated affections and practises a gibberish of sentimental twaddle to the sickly, pink-eyed poodle that dozes its insipidly useless life away in her lap, eats at her plate and sleeps in her bed. And yet, madam more than likely belongs to half a dozen societies whose avowed objects are "culture" of some sort and philanthropy of all sorts.

All of which is a digression.

Returning to the physician, he prescribes a regular and liberal use of the bath, and indulges in a weekly Turkish for himself; but the chances are that he warns his patients to beware of taking too frequent exposures in the hot room lest they "take cold" or "weaken" themselves.

Reverting again to the subject of ventilation, we doctors preach it perfunctorily in all our textbooks, but practically ignore it in our dwellings, offices and places of public gathering. Instance the Academy of Medicine in this city. It was quite recently built, with funds contributed by the profession and its grateful friends, and was planned and arranged under the immediate supervision of modern architects and the patriarchs of the guild. For this reason its sanitary and sanatory qualifications ought to be ideal, strictly in accordance with the marked advances in hygiene made during the past generation, and quite beyond criticism. Hosack Hall, its principal meeting room, is strictly an inside apartment, into which no ray of antisepticizing sunlight can ever find admission. Two or three inconspicuous gratings or shutters, with a string attached, are all the visible means provided for ventilating a room that will hold a thousand people. Possibly these furnish a sufficient exit for superabundant oratory, animal effluvia and cigar smoke that may be emitted during the professional sittings, but the only provision for the ingress of fresh air seems to be the indirect and accidental one of the entrance door, which opens into a dark, stuffy hall or vestibule. Adjoining it in front is a parlor, with tables, lounging chairs, match containers and cuspidors, inviting to further contamination of the breath-tainted atmosphere. This latter room, it is true, has windows opening to the street, which could be utilized for ventilation *if it were not against the rules!*

There could hardly be cited a more striking example of how-not-to-do-it in the matter of ventilation. It is a glaring and inexcusable instance of Anti-hygiene by Example.

And now we have ventilated our crankiness and scolded quite enough for once!

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PROFESSOR RUSBY ON VEGETARIANISM.

ISN'T it a little strange that with hundreds of thousands—perhaps it is safe to say hundreds of millions—of the human race subsisting practically, if not exclusively, on a grain, fruit and vegetable diet that any scientific man should be found to stand up and say in substance that human beings cannot subsist on a non-flesh diet.

If he had insisted that the time has not yet come when a majority of the race *will* eschew flesh no one would dispute him. The evidence that people can and do maintain a high standard of physical vigor without using any admixture of flesh in their diet is conclusive and indisputable. That it is not, for various special reasons, feasible for many people is equally evident.

The vital and essential element of all food is protein. No chemist has yet announced the exact chemical formula of this complex compound; but all the organic chemists have demonstrated that it is found in the gluten of grains, the casein of milk and in many varieties of nuts, fruits and roots.

In fact flesh supplies it in a really second-hand condition.

COUNSEL FOR CAMPERS.

A CAN filled with dried bread crumbs is a wise addition to camp supplies. They will come in handy for scalloped dishes made from cold fish, canned corn, tomato or cold meat. Use a layer of bread crumbs in the bottom of a baking dish, then a layer of anything else, well seasoned with salt and pepper. Alternate in this fashion, using crumbs at the top. When the dish is full, moisten with milk; then bake till brown.

A little fire, both hot and compact, is better than a large one, which covers a yard of estate. The cook who kneels by a small fire will not burn the skin off her face while tending to the food in a spider or kettle.

It is seldom ice can be obtained while in camp. When it can, contrive a homemade refrigerator from a wooden box with a tin box inside, large enough to hold a block of ice. Bore a hole through the tin and wood, then attach a bit of pipe for drainage. Leave the tin uncovered, but have a good tight lid for the outer box. When ice is an impossibility, utilize a brook or the side of a stream for cooking food. Put anything which has to be chilled into a strong basket, weighted with stones if necessary, and set it in the water.

Oil will be found the best thing in camp for frying purposes. It comes in cans with secure screw tops. It costs no more than lard and it may be used over and over again without burning. Fritters of corn, clams or rice or French fried potatoes are a frequent possibility with a can of oil on hand for frying.

Do not use kerosene in camp. No matter how well it is corked it will leak and taint everything within reach. Candles and a few lanterns are far better for lighting purposes.

If you have to rely on condensed milk for cooking, choose an unsweetened brand, and dilute with water till you have a fluid resembling fresh milk. If it is not diluted enough it will mean too much shortening in biscuit, flapjacks or anything with which it is mixed.

If potatoes are hard to obtain, macaroni, spaghetti and rice, which are all easily prepared, will afford the starchy food required in a day's menu.

When eggs cannot be obtained, self-raising flour is a convenience for making flapjacks or fritters. The addition of half a can of corn, a cup of blueberries or a cup of chopped clams will give variety to the plain flapjack.

Upon a mosquito attack at camp, start a smudge of damp bark. The smoke, which should blow toward camp, may be disagreeable, but it is better than the constant irritation of bites. Before bedtime let a smudge clear out tents or the shanty, then hang at the doors and windows double weighted curtains of mosquito netting.

Sometimes a stove is not a possibility in camp, then carry a small stove top and stovepipe along and under the shelter of a tent or shack construct a stove of brick and clay. An oven may not be practical, but you will have an arrangement much more convenient for cooking than the open fire.

Aluminum is the very best material for camp utensils. If it cannot be afforded choose the sightly enamel ware, blue outside, white inside. It makes dish washing a pleasure, provided you have plenty of soap, good clean dish cloths and towels. If money is no consideration, a camp outfitter will provide you with a kit of everything necessary, folding into neat package weighing twenty-four pounds.—*Good Housekeeping.*

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Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

THE MINERAL, ANIMAL, VEGETABLE AND SPIRITUAL KINGDOMS OF FOOD.*

By Ephraim Cutter, M.D., LL.D.

New York.

1. *Mineral Kingdom Food.*—When man first appears in this world the wonderful changes in the umbilical and cardiac circulation necessitate breathing. *Pure air* is inhaled, and exhaled impure from CO_2, H_2O, and other products of respiration. The atmospheric oxygen combines with the blood, not only as a purifier, but as an element of that fluid tissue indispensable to life, and hence a food. It is difficult for me to believe that air, nitrogen and argon enter not as foods in the breath, but it has not been proved, and I hope that the honor of proving this may be had by some one connected with this college.

As air is a mineral it must come in the mineral food kingdom. No man, woman nor child lives airless. All mankind breathe. When breath leaves the body it is dead. Thus the question of *indispensability* of air food is settled at once.

Does air produce disease? Bad air is universally acknowledged as a cause of disease. This badness may depend on the lack of sufficient amount of watery vapor (steam) in the air that dries the mucous membranes of the respiratory tract and dries the skin, specially in very hot weather and less so in cold weather. When hot air has too much water—*i.e.,* humidity—then it becomes almost intolerable and causes suffering known to the public. Air also has a rich morphology—that is, its forms of life and minerals visible under the microscope and revealed by sunbeams in a dark room—that are supposed to carry disease, but which power seems to be controlled by the good health of those who breathe such air. At any rate, the advantages of fresh, pure air are thought worth paying immense sums of money for, as seen in the extensive park system of Boston, for example; summer migrations to mountains, seashores, oceans, forests, wildernesses and in the large hotels, expensive mansions, cottages, tents, boats of all kinds and railroads and vehicles to carry peoples where they can eat fresh, pure air food. This ethic goes back and beyond the old Roman civilization.

Pure air therapy is much used by the profession as above and additionally in thorough ventilation with success.[1]

The use of outside living rooms and chambers for sleep by consumptives is a fine example of pure air therapeutics.

"Colds" are commonly attributed to drafts of cold air. But the perfectly well do not always take cold thus. It is those whose vitality is lowered that take cold easiest. This lowering is often due to fermenting vegetable food in excess within the alimentary canal. For instance, eating a hearty pork and baked beans supper has been followed by colds on exposure. So also a first-class banquet with plenty of champagne full of CO_2 gas. Such foods all paralyze the alimentary canal more or less, so that when the skin is chilled and the blood thrown into the interior, there is congestion and a physiological circus we call "colds" for want of a better name. Patients on a strict beef diet rarely take cold, even when all the rest of their families do.

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* A lecture at the College of Physicians and Surgeons at Boston, April 27, 1903, from the Chair of Clinical Morphology and Applied Medicine.

[1] I think that ventilation in ordinary rooms is best had, even in the worst cases of sickness, by throwing a light covering, as a thin shawl over the patient's head in bed, opening every door and window at once, and, as it were, swashing out the bad air. Then close up before the walls are cold, if in cold weather.

Water is a mineral kingdom food. As we must have water in our atmosphere so must we have air in our water to drink. Non-aerated distilled water is miserable stuff to drink. Go over the United States government reports and there is not an article of animal or vegetable food analyzed but has a very large per cent. of interstitial water. A low estimate puts the proportion of water in our bodies at 75 per cent. As it is evident that man cannot live without water in his tissues, it follows that water, a mineral food, cannot be dispensed with by man. Does water cause disease and death? Yes, when improperly used. People die from drinking ice water sometimes. It is said that some Filipinos and others have been killed by the "water cure" torment among the hells of war. Hold men under water for five minutes and few survive. Again, water is the carrier of the germs of typhoid fever, cholera, etc. Well water may be more or less filled with fungi and dead, decaying animals and plants. Common sense teaches that these troubles are not due to the water but to impurities and abuse. If we would discard water on these accounts it would be as unwise as to discard knives in surgery or in carving meats because some fools have knifed themselves to death.

The sentiment is endorsed that if you cannot have but one thing to use as a medicine (owing to the inability of patients to receive) hot water is the best therapeutic to select, because it promotes downward peristalsis—causes the stomachic and intestinal muscular fibres to contract when more or less paralyzed and distended by gases—washes out the alimentary canal and its adnexa, liver, spleen, pancreas, kidneys—dissolves out crystals that have formed in the blood and that are the essence of rheumatism; thins the blood to normal consistency so as to flow freely through the capillaries where the greater part of life's functions go on—the blood is deoxygenated, secretion is performed. The length of said capillaries moderately estimated in an adult man must be over one hundred thousand miles, and being everywhere one three-thousandth inch in diameter gives only a leeway of one forty-eight thousandth of an inch to the average red blood corpuscle as it passes through them.

Lukewarm water is a good emetic, as it promotes upward peristalsis. Why this is so we know not.

Cold water chills what it touches and has to be warmed to the normal temperature before being of much use, save as a diluent and cooler; is good when a robust person is heated and hungering with thirst; and what is better than water to quench this terrible tormenting, all-pervading feeling we call thirst?[2]

As I have previously shown this college on the screen the crystals of rheumatic blood in proof of what is here said, let me affirm that these crystals could not have formed at all, save from a menstruum or solution that did not have water enough to keep them dissolved. In other words, the writer believes that if rheumatics previously had drunk water enough to normally run their bodies, that these crystals, normally in solution in their blood, would not have formed and caused said rheumatism.

Do not make the mistake of confounding locomotor ataxia with rheumatism, as is constantly done. The diagnosis of rheumatism is finding said crystals in the blood. This subject is such a practical one that I may perhaps illustrate it by concrete examples:

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[2] Thirst is difficult to explain. Perhaps I might venture to say that I think the solar plexus, located at the epigastrium, governs the functions of digestion, one of which is to keep the blood at the normal specific gravity needed for the functions of osmosis in the body. So when there is not water enough, as from long abstinence or eating too much salt, then the solar plexus clamors for the needful water. This clamor we call thirst. It is a wonderful provision of God to maintain life.

Some eighteen years ago an invalid lady came to me with all the signs of acute rheumatism. Her blood presented crystals, fibrin filaments much enlarged, network close meshed; red corpuscles sticky, adhesive, huddled together in massive ridges or in rows. Hot water was a large part of her treatment. She was to take one pint one hour before each meal and on going to bed. But she found so much relief that she drank about two gallons in one day. Next morning she said she could feel the gravel on her skin. The water had dissolved it in her sweat. The sweat had evaporated and left the crystals on her skin. She remains cured of rheumatism. The morphology of the skin in this complaint often yields crystals in abundance—nature's effort to eliminate and cure.

A case of more difficult environment: An English coal heaver, 40 years old, was stranded in New York with chronic rheumatic arthritis. His joints were so anchylosed with crystalline deposits, thickened fibrous tissues, and dryness that his wife had to tend him as if a helpless babe. The good people of our church attended to his physical wants, my wife amongst them, who told me about the case. I visited him, not being called. His blood presented crystals, enlarged fibrin filaments, massed red corpuscles in rows and ridges. Asked if he wanted to be cured, the man said he did, but would not take any medicine, as he had spent his whole substance in trying to get well on medicines warranted to be "sure cures."

The situation appeared hard to meet—no faith in medicine nor doctors, no means to get any but pauper attendance, if he would have it; little in the house to eat, but a plenty of croton water to drink. The man was told: "You need not take any medicine, but I want you to be sure that you drink daily 2 to 4 gallons of croton water cold (as he had no fire). I want you to wash out those beds of crystals from your joints and stop their forming in the blood. (Distilled water would have been better, but it was out of the question.) Eat what you can get." (No use in prescribing anything else.) The man did so, and improved so that he was at work on wages shovelling coal in one month's time. He could not have done this had not a good part of the depositions been washed out from his joints so that they could move.

People have come to me and said: "We have used the hot water without any other medicine and we have been cured of rheumatism." One was an eminent lady that some years ago had to walk with crutches. Now she is crutchless. Of course, it was nature that cured by means of the water, simply because nature is trying to cure all the time, and when her laws are violated she will not, cannot cure. One law is, (to repeat) there must be water enough to keep the mineral salts in solution. A specific gravity of urine 1015-1020 should be maintained in patients, because then there is little chance of crystals being deposited in the system and because it gives blood of normal density.

Another thing: patients who drink one pint of hot water one hour before each meal and on going to bed rarely thirst, even in the hottest of weather, between meals.

The work of the heart to run the blood through the one hundred thousand miles of the vascular system is very much lessened when this amount of hot water is daily drunk. Thus you have one great means of reducing an hypertrophied heart. If this was generally known and practised there would be much less prevalence of death from heart disease. Said hearts overgrow and become diseased because overworked by pumping blood too thick from lack of systemic water.

This is an item in the physics of physic that is worth remembering by all who undertake to treat disease anywhere.

The last mineral food we have time to mention is *salt* (sodic chlorid), which is found in every tissue of the body. Tissues without salt would not be tissue. No person excludes salt from food for it is impossible to do so.

Like water, if overused or abused, diseases of nutrition follow. To quote a single instance of comparative physiology: Twenty kine were wintered on hay feed, water and salt. Twenty other kine were also wintered by the side of the first twenty on hay feed and water. In the spring the salt-fed kine came out in fine health. The saltless kine came out with the loss of their hair—that is, their hair fell out all over.

Scurvy comes from excess of salt food.

In plant biology the soluble mineral salts (manure) must be fed in proper proportions else disease and death follow, as the United States Agricultural Experiment Stations show.

To be continued in Sept. GAZETTE.

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FOREIGN CORRESPONDENCE.

By a Special Correspondent of the DIETETIC AND HYGIENIC GAZETTE.

PARIS, June 30, 1903.

THE temperature in Paris has taken a sudden leap upward. It is very hot here now, and the dust on the streets is excessive and very annoying. At the same time water is used here with great parsimony. Thus, the extravagant expenditure of water in the Parisian hospitals has been brought to the attention of the Conseil Municipal by a member of this body in a special report.

I hope it may be of interest to GAZETTE readers to learn how much water a Parisian uses. From this report we learn that the expenditure of water for every Parisian, both for public use, such as street irrigation, etc., and for private use, amounts to 300 litres per diem. For private use a Parisian consumes 150 litres per day. Whereas in the hospitals—Hotel Dieu, Lariboisiere and St. Louis being the most extravagant ones—from 735 to 739 litres are used.

I must say, however, *en passant,* that as far as I have observed water is not wasted by the surgeons in the Parisian hospitals. The amount of water poured out for one operation in a New York hospital, for instance, would be enough for at least ten such operations in a Paris hospital. Thus, in the Hopital de la Pitie, for example, I saw a surgeon perform resection of the knee joint in a man, and he did not use more than half a litre of water. The instruments were kept on a dry aseptic towel, and the surgeon wiped the debris off the stump as well as his saw with dry aseptic pieces of gauze. The wound was closed and a dry dressing applied. Thus except for about half a litre of an antiseptic fluid used at first for cleaning up the field of the operation, no water was wasted. Some surgeons in other hospitals use a little more water in their operations, but, as I said above, not a tenth as much as is done in New York hospitals.

As to the 150 litres of water allowed for the private use of a Parisian I think it is decidedly inadequate, and if the Frenchman required home comforts as much as the Anglo-Saxon does, he would certainly not be able to get along with such an allowance. And this brings me to speak of some hygienic conditions obtaining here.

As to the cleanliness of the public thoroughfares, there is something left to be done yet. As I said above, the streets are dusty. The streets are swept only once in twenty-four hours, that is in the early morning. By seven A.M. all the garbage from the streets as well as from the houses is removed. And I must say here that in Paris as well as in London, no ash cans, or any cans whatsoever, are allowed anywhere outside the houses. The garbage and ashes are kept in bins in the yards, and the wagons in which they are removed are covered. But what is better still, is that all the work is done in the early morning. So far so good; but, whereas in London the refuse is being constantly swept from the streets, in Paris this is done only once in 24 hours. Of course, taking into consideration the dust of the Paris streets, it is better perhaps that they are left alone in the daytime, otherwise the sweeping would raise much dust and make it very uncomfortable; but this drawback might be overcome by more frequent and thorough irrigation of the streets. Of course it must not be forgotten that Paris has a great many wide streets, and that the pavement is mostly of stone, which favors the accumulation of dust in the crevices. However it may be, I suspect that the dusty condition of the streets is one of the causes of the spread of tuberculosis, a disease unfortunately most prevalent in France, and in Paris in particular. But I intend in a next communication to deal with this important matter at some length, and therefore will not dwell on it here.

As to the dwellings, very few of the dwelling houses occupied by the working or even middle classes have bath-tubs or wash-tubs. The washing of linen is done either by the housewives themselves, or more commonly by professional laundresses, on the Seine in houseboats. It stands to reason that under such difficulties the housewife with limited means is very parsimonious about frequent change of linen, and frequent bath-taking cannot under such circumstances be indulged. Such conditions do not encourage bodily cleanliness, the evil effects of which need not be dwelt on at any length. In addition to this, the plumbing in the dwelling houses of the poor and even the middle class is very antiquated, and in some houses I noticed that the drinking water is obtained from a faucet in the water closet. Though the fecal discharges do not, of course, pass through the water pipe, yet it is obnoxious to a refined taste to obtain drinking water from such a suggestive source. These are some of the causes which in all probability keep up the high mortality rate in some of the large European cities.

The typhoid fever epidemic in Rouen has samewhat abated, as the troops, where the fever first originated, were sent away to other quarters. According to an official report the epidemic was caused by impure drinking water. According to an official statement the soldiers were at first ordered to use only boiled water; but a bacteriological analysis of the water having shown the presence of comparatively few germs, the restriction was removed and unboiled water was allowed. As it appears, the spring which supplied the water was polluted by the recent heavy rainfalls, and hence the epidemic. But what is remarkable, however, is the fact that in prison as well as among the 6th Chasseurs, there occurred no cases of typhoid fever. This is ascribed to the fact that they did not use the city water which is derived from a spring, and it is therefore claimed by some that spring water in spite of its healthy and attractive appearance is apt to contain the germs of infectious and fatal diseases, and it is therefore necessary to be cautious in its use.

Another source of typhoid fever infection is traced to oysters, to which cause attention has now and then been called by some investigators. Unlike water, however, which we can blame as much as we wish, without anybody taking offence, as it is supplied free by nature, the case is different with regard to oysters, traffic in which constitutes an industry. Dr. Faveau de Courmelles, as delegate of the Société Française D'hygiene, wanted to present a paper on this subject before the Congrés des Societes Savantes, which was recently held in Bordeaux. He sent a resumé of the paper to the minister of instruction, under whose auspices the Congress was held, but to his surprise his paper was rejected without any reason being given for doing so. This was in fact the second time that his paper on this subject was rejected. The explanation of the members of the Société Française D'hygiene is that the minister did not wish to hurt the French oyster industry which is especially developed near Bordeaux. The members are also of the opinion that the French oysters are harmless, but the foreign oysters are carriers of typhoid fever infection.

This society also devotes its attention to improving the hygienic conditions of the Paris metropolitan, or underground railway. As matters stand now, the ventilation of the tunnels between the stations is bad, the cars are frequently overcrowded, and in case of an accident to the train between two stations the passengers would have great difficulty in quickly getting out of the cars and in reaching the station. Thanks to the efforts of the society some of the evils are being partly remedied, but there is still great room for further improvement.

M. Roux has recently presented to the Academie des Sciences a communication from M. Calmette with regard to the latter's dry antitetanic serum. Calmette advises the use of this serum as a dressing in umbilical wounds of young infants, in wounds of soldiers in campaigns in regions where tetanus is of frequent occurrence, in fact wherever the occurrence of this disease is to be feared, and he considers it an excellent prophylactic against tetanus. As the serum is not injected, but applied externally as a dressing, it can be used by the most inexperienced person.

E. Palier, M.D.

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EXPERIMENTS IN CLIMATOLOGY—THE CANADIAN SUMMER.*

By Ezra H. Stafford, M.D.

The summer of the southern hemisphere is colder than that of the northern. In the development of the meteorological theory which bears his name, Croll in his work on "Climate and Cosmology" incidentally brings out this fact.

"It is well known," he says, speaking of the temperature at the Equator, "that, notwithstanding the nearness of the sun in January, the influence of the present distribution of land and water is sufficient to make the mean temperature of the whole earth, or, what is the same, the mean temperature of the air over the surface of the earth higher in July than in January.

"The reason of this is obvious. Nearly all the land is in the northern hemisphere, while the southern hemisphere is for the most part water. The surface of the northern or land hemisphere becomes heated in summer and cooled in winter to a far greater extent than the surface of the southern or water hemisphere. Consequently, when we add the July or midsummer temperature of the northern to the July temperature of the southern hemisphere, we must get a higher number than when we add the January or midwinter temperature of the former to the January temperature of the latter. The tendency of the present distribution of land and water, when our northern winter occurs in perihelion, is to counteract the effect of eccentricity."

The popular notion that stations in the same latitude have approximately the same climate, and that it becomes progressively colder as the polar regions are approached is thus only correct in the roughest sense. In North America the continental temperature in some parts of the temperate zone is actually higher during the summer than it is in the torrid zone. Contrasts as unexpected may be observed in passing from east to west, when striking variations of temperature will also be observed at points equally distant from the Equator. Christiania, Stockholm and St. Petersburg are at about the same latitude but Bergen, which is further north, has a warmer climate; and Reykjavic in Iceland, which is still further north, has been inhabited for a thousand years. Coming to the western hemisphere, however, the scale turns the other way, and it will be found that the three European capitals mentioned are at a latitude which in America has not as yet been deemed suitable for general habitation: points represented by Greenland, Baffinland, the northern waters of Hudson Bay, Great Slave Lake, Alaska, and Behring Sea. Montreal, on the other hand, which has a severe, cold winter climate similar to that of Christiania and St. Petersburg, is at about the same latitude as Florence, Italy, fifteen degrees to the south. Yet Montreal is not so far north as Victoria, British Columbia, with its balmy south of England winter.

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*The Canadian Journal of Medicine and Surgery.

When to these climatic discrepancies is added the fact that the annual temperature in any region forms only one of the many minutiæ of the climate as a whole, and that there are other factors of equal importance which have no connection whatever with the latitude, it will be readily seen that the general rules received heretofore are chiefly of importance by reason of their numberless exceptions, and that to gain a correct notion of the climate of a continent each separate region must be individually and independently studied.

Medical climatology takes into consideration all the phenomena of cosmic force which are manifested in each locality, and views them in relation to their influence upon the life and health of the race. These have been found to be of the most complex and delicate character. Continental position in relation to mountain ranges, altitude, marine position in relation to ocean currents, the presence of large bodies of water in the interior, prevailing winds, atmospheric humidity and foreign matter floating in the air, duration of sunlight and presence of electricity, the quality of the soil in its infinite varieties and the nature of the exhalations from it, vegetation and radiation, the frequency and violence of seismic motion, and even stellar influences combine together to form the meteorological *tout ensemble* which in every region goes loosely by the name of climate.

The foregoing, however, are but the contrasts noticed at the same latitude and at the same time. It is not necessary to enter in this place into a discussion of the prodigious changes in climate which have taken place on the continent at periods long anterior to the dawn of human history—changes which may be indicated by a tropical climate, flora and fauna in Greenland, or a heaped-up ice sheet enduring for countless years where Montreal and Toronto, Boston, and Chicago now stand. The recurrence of another Ice Age, when the vast glaciers will again dredge slowly southward, with low thunder grinding and powdering before them like dust the cities of the present; or another northward extension of warmth benign, when the regions of the pole will again be invaded by the flowers and the singing birds of the spicy south, alike concern no living man; or, for that matter, even the human species, which will undoubtedly have run and finished its splendid, but comparatively brief career before the repetition of either phenomenon.

At the present time the climate of the continent is characterized by a winter of severe cold, except in the southern portion; and a summer of intense heat except in the northern. By alternately shifting one's position five hundred miles in each direction from a given point in the central region it would be possible at two points a thousand miles apart for one to escape in turn both extremes of temperature. The birds of passage were the first observers of climatology, and the first to avail themselves of its variations. The conveniences of civilization have made the practice possible for those who do not enjoy the same natural facilities for easy and rapid locomotion.

This division of the continent according to climate closely coincides with its political division. During the winter every part of Canada is cold but the Pacific coast. During the summer, generally speaking, every part of the United States is hot to the point of discomfort, except the mountains, sea border and Great Lakes. The term discomfort, as used here, ranges in its effects all the way from impaired energy to heat stroke. The first may be said to be universal during the hot months; while the extreme effect is only common at certain times and in certain places, such as the cities. Frequent cases of acute insanity also follow every hot wave.

The manifold advantages, therefore, of the north, as a resort during the summer requires no experiment; and applies as forcibly to the larger continent which contains Europe and Asia as it does to North America. The possible number of distinct meteorological combinations appears, indeed, to be more limited than one would expect, for in the main the climatic features of both the Old and New World are identical, the only difference being in the manner of their distribution. The Steppes of Russia and the ice fields of Siberia are not wanting in Canada. The charm of Scotland and the bold scenery of Norway may be found accurately reproduced in Nova Scotia and Newfoundland. Indeed, the resemblance in the case of the last two is so striking that, upon being shown by the late Dr. Harvey a large number of views of both countries indiscriminately, I found it quite impossible to distinguish the Newfoundland from the Norwegian.

The places of ostensible resort in Canada are already numerous, and are confined for the most part to the lake region and the Maritime Provinces, with an intermediate region along the course of the St. Lawrence and its tributaries. Attractive scenery and convenient access probably led to their first choice, and custom and hotel accommodation did the rest. It is usual to speak of the Canadian summer resorts with a certain degree of complaisance; but as a matter of fact the entire country is a vast summer resort. Though unknown to fame, the farm in the backwoods, the primeval forest, and the river at the frontier are resorts of inestimable value. The advertised resort indicates a social usage, and gives promise of a definite menu; but from the standpoint of physiological therapeutics has no other significance. To appreciate the Canadian summer, taken simply as a summer and regardless of resorts and conventions, it is necessary to familiarize one's self with the same season as it exists in the southern portion of the continent.

In the cities of the plains the temperature in July rises for many days in succession to 105 and over. During a summer's residence in Nebraska I painfully remember this period of protracted heat, which was so great that the brick-paved streets exploded with loud detonations, casting the bricks in all directions. There was no breeze, and fortunately, for any movement of the air only served to put in motion the suffocating alkaline dust that whitened on the banks of Salt Creek or was strewn in hot powder on the shores of Salt Lake. A little shower was gratefully designated by the newspapers as a million dollar rain. Too listless to move, and with a sense of fulness in the head, I think I felt more sympathy then for the ten thousand as they marched through the deserts of Persia than I ever did when I was construing the Anabasis. As far as I could see lay the endless prairies, parching in the fiery heat, with no rising hill or leafy tree or limpid rivulet; but only the brazen sun above, the baking mud beneath, and the ocean more than a thousand miles away.

In the large cities I have found the conditions quite as distressing. New Orleans is more endurable during the summer than Chicago, and San Francisco is more pleasant than either; but in Boston the humidity of the air renders the heat almost insupportable; while the contiguous resorts on the coast confer in the long run no more permanent ease than does the momentary application of cold to a fresh burn. In New York the heat seems to bring with it an even greater depth of despair. This is partially due to the fact that, in the matter of space, this city is architecturally constructed upon the frugal plan of a chiffoniere. It is nothing more nor less than a huge piece of furniture in brick and iron; and serves to indicate the monstrous lengths to which the obsession of American utilitarianism can go. Baltimore and Washington I also found undesirable, and here malarial poison is added to the heat. The local doctrine that seven years' residence confers immunity is incorrect; but even if it were true, seven years is too long to wait. In July the Washington shopkeepers, to attract trade, fry eggs by breaking the shell and allowing the contents to fall upon the heated asphalt of Pennsylvania Avenue.

The addition of further evidence is hardly necessary to indicate the relative significance of the Canadian summer, and how imperative a need there is in the middle and southern portion of the continent, over and above the summer resorts which they already have in the mountains and on the coast, for a place of refuge during the hot months. At this time every part of the north represents, not only physical comfort in its widest sense to every one who journeys thither, but renewed health and refreshed energies, and to many even life.

The curative action of climate may be classed with the "alteratives" of the pharmaceutist; being especially efficacious in cases of lowered vitality, impaired resistance, degenerative or chronic disease. The rejuvenescence often accomplished by the climate cure is not transient or volatile, but far reaching, stable, permanent; and while the lives of many have no doubt been prolonged by a journey to the south during the rigors of the northern winter, it may with equal truth be said that the health of many may be renewed by a sojourn in the north during the summer. Both the extreme heat and extreme cold are badly borne by those who are enfeebled by disease; and during periods of either extreme the death-rate rises to a noticeable extent.

The benefit of a summer spent in the pure and brilliant air of the north would be well marked also in cases of neurasthenia, melancholia, nervous prostration, and kindred maladies of the nervous system, as well as in early phthisis and affections of a bronchial or pulmonary nature. With equal advantage the same might be advised for cases of digestive derangement and cardiac or renal trouble; by strengthening the constitution as a whole—provision being, of course, made in the first class of cases for the exhibition of suitable medicaments by way of reinforcing the other favorable influences in overcoming the functional weakness; and the utmost caution being taken, in the second class of cases, to avoid the violent muscular exertion of those outdoor sports for which there are so many opportunities and so many temptations in Canada during the summer.

That numbers so comparatively small from the United States should avail themselves annually of these incalculable advantages will seem quite inexplicable until it is remembered that the distinguishing climatic aspects of Canada have not received the careful study which they merit; and that they have not been brought sufficiently before the notice of the medical profession of the outside world, in whose discretion it largely lies to advise the place and manner in which a large proportion of the people should spend each summer.

This negligence in furnishing scientific climatic data finds a poor compensation in the effusive babble of those uninformed individuals who are led by their incredible patriotism to resent any distant reference to "The Lady of the Snows," and to insist, quite as unreasonably, upon the untiring iteration of "The Lady of the Sunshine." As a matter of fact the whole lady business is mere moonshine; and the attention which it has attracted smacks humorously of the provincial. Davos also has snow and a cold winter, but no attempt has ever been made in Switzerland to disclaim the indisputable fact.

So in Canada, it is the actual climatic conditions existing there that are of importance to the medical profession, and these details alone. But the scantiness and the unreliability of the information obtainable is notorious, and has even been complained of by scientific writers.

"It is extremely difficult," Dr. S. E. Solly remarks, in his late work on Medical Climatology, "to speak with definiteness and justice of the claims of Canada as to its health resorts, because, even in regard to general climatic characteristics, the area to be covered is so great, and accurate information is so scanty and difficult to obtain. The local variations, too, are many, and would require close investigation before their exact merits and demerits from this point of view could be decided upon."

At present latitude 50 marks the northern boundary of social and commercial Canada. Beyond this lies *terra incognita,* in the mid portion of which a mighty sea, almost as large as the Mediterranean, rolls unseen its salty waves. Primeval forests clothe vast stretches of wilderness, uninvaded as yet by civilization. Countless lakes and innumerable rivers, unnamed, unfamed and unclaimed, murmur amid the hills. I have been informed by missionaries and officers of the Hudson's Bay Company that a residence in these wild regions is regarded by those who have enjoyed the experience as a panacea for almost all the ills that flesh is heir to; and the Rev. Thomas Hurlburt, who lived for many years on the coast of Hudson Bay, has spoken in the highest terms of the health-giving properties of the wilderness.

As one approaches the Canadian polar regions, the summer season becomes synonymous with perpetual day and undying sunshine. The therapeutic effect of solar light cannot be overestimated in the treatment of disease. It is of paramount importance. Not only does the direct sunlight render the atmosphere aseptic, but it has also an overwhelming physical and mental effect upon the individual.

In a paper bearing upon the physical effects of arctic cold, darkness and light, Dr. F. A. Cook, surgeon of the first Peary expedition to northern Greenland, calls attention to this fact. "I wish," he says, "to emphasize the fact that it is not the low temperature of the Arctic from which explorers suffer. It is the long and intense darkness which always induces a temporary depression of vital forces. At about Christmas, which is the polar midnight, we found ourselves lethargic and more or less overcome by spells of melancholy. Our skins were jaundiced and pale, we were incapable of prolonged exercise, we lost vigor and ambition and interest in our surroundings. Our condition was a mixture of vague elements of chlorosis and the profound debility of anemia. With the return of the sun came a rapid transformation. The jaundice, the pallor and muscular debility quickly disappeared. Periods of profound vasomotor disturbance and of mental and nervous excitement followed each other like eddies in a spring freshet. Before the sun had reached its summer altitude our bodies were quivering with animal passions. Our skins, which were nearly bloodless, were now flushed. The eyes, which were dry, now sparkled; the saliva at times fairly trickled from our lips. Indeed, the return of the sun started life into a renewed rivalry of bursting springs. I am confident that many forms of nervous, gastric and pulmonary diseases would be greatly benefited by these conditions. Those who have early exhausted the sparks of youthful enthusiasm, who seek the elusive elixir of life, who long for the fugitive balm of perpetual youth, would find a new interest."

Dr. John N. E. Brown, the Territorial Secretary of the Yukon, writing from Dawson City, has from time to time during the last three years spoken to exactly the same effect regarding his own experience; and I do not think it too much to say that as soon as facilities are afforded, the summer of the far North will be utilized for the therapeutic effect of its polar climate during the summer, just as points far more remote and of less certain efficacy are sought after now. Indeed, the advances made in Canada during the last few years in the matter of transportation give promise, perhaps, of what may be expected in the future, when the country of the fur trader and the Esquimaux may also become accessible to the general public. Industrial considerations will no doubt be the impelling motive in all such enterprises; as it has been already in the settlement of the Yukon Territory; but the advantage will be none the less substantial to the health-seeker and tourist.

Meanwhile, we have to do with the narrow strip of land which lies south of latitude 50, and reaches from the Atlantic to the Pacific. In this tract are distributed every variety of climate to be found in the temperate zone. It is traversed from Halifax to Vancouver by the Canadian Pacific Railway, and a trip from ocean to ocean along this great national highway forms one of the most instructive and delightful itineraries for the summer which could well be imagined. The splendor of the scenery in its rapid transitions from forest to plain, and simple pastoral to the terrible grandeur of the mountains, awes while it uplifts. In this journey one is brought face to face with some of the most sublime monuments of nature.

The climatic influences will also be found to be specially favorable, and the resort at Banff Hot Springs can compare advantageously with anything to be found elsewhere in America or Europe. The surrounding scenery is inspiring in the extreme, the climate is Alpine, and the atmosphere ambrosial. The coast and the mountains of British Columbia offer a great diversity of climate; and it is in every way desirable that the various conditions existing there should receive the thorough and scientific study which the medical profession demand. Too much weight altogether has been given in the past to the valueless opinions and impressions of casual tourists, which, while complimentary and no doubt gratifying, carry no authority in a matter where the careful conclusions of the specialist are required.

For example, this province is in one of the most favorable positions on the continent for the treatment of tuberculosis by a residence in the forest, a plan of climatic treatment which has met with such admirable results in the Black Forest country of Germany. The terebinthinate quality of the air is well marked in British Columbia, and the variations of temperature are neither sudden nor great. Space will not, however, allow for speculations by the way. It is sufficient to point out that the matter has not received adequate attention.

The table lands and the plains of the interior also offer many inducements to the health-seeker. When practising medicine in Calgary in 1889, the writer was struck with the stimulant action of the atmosphere. The air is so clear at this point, and the peaks of the Rockies may be seen with such distinctness, that many new comers can scarcely believe, against the apparent evidence of their senses, the statement that the mountains are eighty miles distant; and are irresistibly inclined to set out on foot during the afternoon for a ramble among the ravines which are so distinctly visible. For many, a life on the table lands or on the plains is preferable to a residence in the mountains, where the altitude is often great, the air rarer, and the exertion of getting about very fatiguing. Brandon and Winnipeg have a severe winter, it is true, and in the summer occasional periods of extreme, though dry heat. Yet the effect of a residence in Winnipeg, continued throughout the year, I found to be eminently conducive to health; and a large number of cases came under my notice where the individual had been in great dread of phthisis, but after a year or so in the pure, dry air of the prairies had gained such strength of constitution as to make all dread of tuberculosis groundless.

The Lake of the Woods district, midway between the plains and the Great Lakes, is another charming spot, as it theoretically ought to be, and, I am informed, is a most healthy locality. My own experience having been but for a few days, I can only speak personally of the scenery, which has a certain wild beauty the like of which I have never seen outside of Canada. Lake Superior, Parry Sound, the Muskoka district, and the Upper Ottawa need no description here, nor, indeed, the voyage through the Great Lakes, in the progress of which one passes some of the most picturesque scenery in America. The air in these regions is pure, the amount of sunlight large. The temperature is seldom high enough to cause discomfort; and not only is one nearer to the local centres of civilization at Montreal or Toronto, but he possesses many of the conveniences of civilization which are not so readily obtained in the more remote districts. Dr. E. H. Adams has written extensively upon Muskoka, and by his valuable researches has made himself an authority upon this important subject.

Passing eastward, the features of a continental climate are slowly merged in those of a marine. The celebrated journey down the historic St. Lawrence and up the Saguenay is of as much interest to the scholar and pleasure-seeker as it is to the medical climatologist. The health resorts of the lower St.

Lawrence are numerous. There is not perhaps, the same proportion of sunlight, there is more moisture in the air, occasional fogs, and a somewhat lower temperature; but for all this one is compensated by the sea bathing which, though a trifle cold, is excellent. The scenery along the river is bold, inspiring, beautiful.

New Brunswick, Nova Scotia, Prince Edward Island and Cape Breton possess a marine climate. The moisture may be found somewhat trying by a few who are susceptible to the damp, but the majority will be able to find an acceptable residence. The summer season here is otherwise almost perfect, and one great advantage of the Maritime Provinces is their easy reach from Boston and New York. From Canada the journey may be made by the Intercolonial Railway, which traverses a part of the country rich in scenic beauty.

It would be difficult to actually define the craving for a marine climate which periodically takes possession of nearly every person. Sailors have told me that the sea "calls them." They can give no more lucid explanation than that of what they experience. It is an overmastering need for the sea, a hunger for the salt air that cannot be stilled. Whether it is the smell of decaying kelp, or the dinner of shellfish and cod, or the purity of the wind, or the halogen elements all let loose in the whirling air, or the bath in the sandy cove, the flooding tide and the sounds among the ships—whatever the mystery and the magic of it all may be, it is certainly imperative in its promptings and substantial in its results. And it is this instinctive necessity of race which renders the maritime provinces, and especially Newfoundland, of the utmost importance in any discussion upon the medical climatology of North America.

Newfoundland offers all that can be desired in a summer resort. The richness of its historical past, the quaintness and sterling worth of its people, its primitive customs, the rugged grandeur of its coast-line and the wild beauty of its interior, will prove an unceasing source of charm and interest, as long as men continue to be moved by the imagination or to be conscious of a sense of beauty. The amusements are varied, and present any degree of excitement which the individual may happen to crave. Newfoundland is not a country of verandas and shade trees, and one is not there expected to spend his time in a rocking-chair, listlessly gazing at the thermometer, clad in the lightest possible suit of pajamas, and guzzling iced drinks. Whatever the tastes of the visitor may be, he will leave the island at the end of his sojourn with hardened muscles, strong eyes, sound lungs, efficient circulation, the appetite of an out-harbor man, and the heavy slumbers of a child.

Newfoundland has a cold marine climate which at any season of the year proves wholesome and stimulating to the robust, and during the summer, bracing and refreshing to even those who are in feeble health. Until very recently, consumption was almost unknown in the island. The "salt in the air" produces a marked tonic effect. The winter is not as severe or as prolonged as it is supposed to be. By the beginning of April spring is well under way; and the bland sun is already calling forth the tender green in lawn and forest. The summer is warm, but not relaxing.

Until recently the journey to Newfoundland was a long and fatiguing one; but at present it may be made with the utmost dispatch and comfort. From Canada one travels by the Intercolonial or Canadian Pacific to Sydney, Cape Breton, and from this point a sea voyage of only six hours' duration lands the traveller at Port-aux-Basques on the western coast of Newfoundland, from which point he can travel the whole length of the island by the Newfoundland Railway, which is a splendid feat of engineering construction, and is well equipped in every detail. The route forms a grand curve; at first striking the rugged western coast, and then turning inland and traversing the heart of the island. Here one passes vast tracts of hitherto unexplored country, and at last, emerging upon salt water again, Trinity Bay, Bonavista and Conception Bay are sighted, and the wonderful journey terminates at the City of St. Johns. Connected with the railway is a fleet of ships which touches at nearly every fiord and cove along the coast, and runs northward during the summer to the lonely coasts of Labrador. A month of unflagging interest could be spent in circumnavigating the island in this way.

Then for the sportsman and the victim of the "strenuous life" there is the camp fire in the primeval forest, the trout in the unvexed stream, the deer upon the wooded hill, the wild ducks rising from the rushy lake. For him of less sanguinary tastes who loves Homeric simplicity, there are the pastimes of the vikings, refreshing contact with simple folk and the drama of human nature untainted by artificiality. There is the rough comfort of the fisherman's cabin in the village among the rocks, the screaming of the gulls, the roar of the black, tumbling waves, and the rocking craft putting to sea in the gray of the early morning. But for him whose tastes are urban there is that hospitable colonial city, gray with age, built among the towering cliffs. Here lies St. Johns with its churches, schools, clubs and mansions. Not unlike Quebec at first view; and much that cities have, it has: wealth, luxury, splendor, and an old aristocracy. Here it looms in the purple mists of evening, while about it float four hundred years of romance. But the demons are stilled on Bacalieu, the flag of the pirate is seen no more, and the story of the Prisoners of Portingale is yet untold.

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Hissock: Got the rheumatism, eh? I congratulate you, old boy.

Twinger: Congratulate me?

Hissock: Yes; it must be awfully nice to have the rheumatism—there are so many things in the drug market that are good for it, you know.

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THE PROTECTION OF THE BODY AGAINST ITS OWN DIGESTIVE FERMENTS.

Among the "old questions that are ever new" is the immortal problem: Why does not the stomach digest itself? A recent revival in interest is now evident, due to new observations along two lines, one of which is the demonstration of the presence of proteid-digesting enzyms in all the cells of the body, the other the direct study of "antiferments." Since it has been shown that all cells are capable of digesting themselves after death of the tissue that contains them, the question naturally arose why they were not similarly digested during life. One of the popular solutions of the problem of the stomach and its failure to commit self-digestion was that the alkalinity of the blood in the walls of the stomach prevented the pepsin from acting on them, since it required an acid medium. But the fact that pancreatic trypsin acts best in alkaline medium rendered this explanation futile when applied to the conditions of self-preservation of the intestines, and the same thing applies to the autolytic ferments of the tissues. An ingenious method of attacking the problem lies in the ability of intestinal parasites to live in the active digestive fluids of the alimentary tract without suffering harm. That they are not impervious to the alimentary fluids is evident, since they obtain their nourishment by absorption from these fluids. As early as 1878 Fredericq observed that round worms from the dog's intestines could live for many days outside the body when kept in a solution of pancreatic juice. The early authors considered that the living tissues resisted the action of digestive ferments in the same way that they resisted the action of stains and of other substances, but this was more of a substitution of one problem for another than an explanation. E. Weinland found that not only do parasites resist the action of trypsin, but that they also rendered it incapable, to greater or less degree, of digesting other substances, and he thought that the parasites protected themselves by producing an antibody for the ferment, an "antitrypsin." Dastre and Stassano have followed the study of the defense of the tenia serrata of the dog still farther, and seem to have proved very nicely the method of protection. As has now become well established, the pancreatic juice as first secreted from the gland is usually quite inactive to proteids. Its proteid-digesting enzym is in an inactive form, trypsinogen, and needs to be acted on by the intestinal juice before it is changed into the active trypsin, this change being accomplished by the enterokinase of the intestinal secretion. Dastre and Stassano found that if an extract of the tenia was permitted to act on enterokinase about four hours, the effect was that the enterokinase was unable to render fresh pancreatic juice active. On the other hand, if the tenia extract acted on fresh pancreatic juice, and this later was added to enterokinase, it became active almost as if untreated. Further, if the enterokinase and pancreatic juice were left to act on each other for a time and then treated with tenia extract digestion is active, although less than in the controls. Therefore, it seems that the tenia extract prevents the enterokinase from activating the trypsinogen, rather than interfering with tryptic action.

Fermi first showed that fresh blood serum not only was not digested by pancreatic juice, but that it attacked and destroyed its tryptic enzym, an observation that has since been abundantly verified. Here again the action seems directed more against the enterokinase than against the trypsin. Delezenne finds that serum not only checks enterokinase, but also the substances that occur in leucocytes, bacteria and venoms that have similar activating effects on trypsinogen. This power of normal serum to prevent the action of ferments seems to be quite as general as it is remarkable. For example, Simnitzky finds that papain is similarly affected, and that the serum of animals immunized to certain bacteria is not only antagonistic to the proteolytic ferments of the specific bacteria, but also to similar ferments of other bacteria.

On the basis of these observations it would seem that the tissues do not digest themselves and each other because they contain something that prevents the action of the digestive ferments. But since it is shown that this antibody does not affect the ferment that has been made active, but is only effective against the kinase, being in fact an antikinase, it seems to us that the problem is quite as open as before, for in the alimentary tract the parasites and the intestinal walls come in contact with large quantities of active ferment. Jacoby's demonstration that the ferments of the tissues are specific for their native tissues also fails to explain why the tissues are able to digest themselves when they are dead, but not when alive, except on the assumption that during life the circulation restores the equilibrium as fast as the intracellular enzymes break it down. The leucocytes also show a great power to digest proteids of all sorts, not only themselves, but also the other tissues, and even foreign substances like catgut sutures, provided only that the proteid is dead proteid. It seems to us that so far the antiferments, interesting and important as they are, have failed to explain the riddle of the failure of self-digestion of the body by its own enzyms.—*Jour. Am. Med. Association.*

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CLINICAL DATA RELATING TO THE IRON TREATMENT OF ANÆMIA WITH REMARKS UPON THE ACTION OF ORGANIC IRON COMPOUNDS.

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Translated from "La Revista Medica Cubana," August 1, 1902.

The value of iron in the treatment of anæmia has been a recognized empiric fact since the very early days of medical knowledge, and in spite of the numerous attempts to find a substitute for iron which would bear comparison even remotely to the efficiency of this substance in regenerating an impoverished blood, no drug has as yet been found which could take its place in therapeutics.

The studies as to the nature of anæmia and as to the mode of action of iron which have appeared within recent years have brought to light the scientific basis of iron therapy, and when we administer iron today we no longer do it empirically, but with a set purpose—that of overcoming a derangement in the metabolic balance which spells *life.*

Biology teaches us that iron is a constant constituent of the animal as well as the vegetable cell, and that it is especially abundant in the nuclei because the nucleins are rich therein. Its exact role in the chemical processes which sustain the life of the cell is unknown, just as we do not know to this day, the part which the other inorganic constituents of cytoplasm—sodium, potassium, calcium, magnesium, phosphorus, and chlorine, play in cellular metabolism. We know, however, that iron, as well as the other mineral constituents of the cell, is essential to its life-processes, and that the tissue iron is supplied to the organism normally through certain elements of food rich in this metal.

In anæmia we have to deal with, not so much the tissue-iron just spoken of, but with the iron of the blood, which is contained in the very complex molecule of the mediator of oxidation—the hæmoglobin. As we know, the tissues breathe, *i.e.,* absorb the oxygen necessary to life, by taking up the oxygen yielded to them by the hæmoglobin of the blood. We also know that the ability of the hæmoglobin to take up oxygen as supplied by pulmonary respiration is dependent upon the iron contained in the hæmoglobin molecule. According to Hoppe-Seyler this molecule consists of a proteid substance and of hæmochromogen, the latter constituting four per cent. of the combination. It is this hæmochromogen, or blood-pigment, that forms the loose chemical combination with oxygen which enables hæmoglobin to carry the life-giving gas to the tissues. Hæmoglobin contains from 0.33 to 0.40 per cent. of iron, and one atom of iron in the hæmoglobin corresponds to one molecule (2 atoms) of oxygen in loose chemical combination with the hæmochromogen.

The dependence of oxidation, which is the prime factor in the biologic equation, upon the iron of the hæmoglobin contained in the red blood cells is firmly established by all the proofs that science can require, but there are two questions which have been subjects of controversy for a number of years past, and which concern the use of iron in correcting deficient states of the blood. The first of these is the question as to the mechanism underlying the pathogenesis of primary anæmia. The second concerns the mode of absorption and the mode of action of iron administered therapeutically.

One set of observers, led by Bunge, (*Zeitchr. f. Physiol. Chem.,* Vol. IX.), believe that primary anæmia is caused by an interference in the normal absorption of iron through the intestinal epithelium, and that this interference is due to the fact that the inorganic iron compounds are split up in some way in the intestine so as to be incapable of absorption. The arguments advanced in favor of this hypothesis are, for instance, that large doses of iron are often needed in primary anæmia to produce a therapeutic effect, and yet it is known that the whole amount of iron in the blood of a healthy woman amounts to only two grammes (thirty grains), so that a few day's treatment would more than restore the loss of a portion of this amount as it occurs in anæmia. And yet as we know many weeks or months are usually required to cure an anæmia.

On the other hand, Woltering, quoted by Hausermann (*Zeitschr. f. Physiol. Chemie,* Vol. XXIII.), Kunkel (*Pflüger's Archiv,* Vol. LXI.), Macullum (*Journal of Physiol.,* Vol. XVI.), Quincke (quoted by Hausermann), and others, found experimentally that iron is absorbed in the intestines if given therapeutically.

As the question stands at present, it is probable, so far as the balance of evidence is concerned, that *inorganic salts of iron are not absorbed into the blood at all,* but that their administration affects the blood of chlorotics in some such indirect way as Bunge has outlined. The inorganic salts are converted in the intestines into sulphides and tannates, the tannic acid being supplied by the tannin of some foodstuffs, and are passed out in the form of dark fæces.

The inorganic iron compounds, in addition to the uncertainty of the results and the slowness of the therapeutic effects obtained therewith, have the serious disadvantage of disturbing gastric digestion and causing constipation—disadvantages which are appreciated by all clinicians who know the importance of a perfect nutrition in anæmics.

With the realization of the necessity for easily absorbable iron compounds which would be taken up by the blood stream, and would increase the amount of hæmoglobin and red cells by direct action upon the blood, came the introduction of organic iron compounds, and it was only then that the possibilities of iron therapy in anæmia were realized. Since then a number of preparations or iron in combination with organic substances have been placed upon the market, but even among these, which are as a whole all superior to the inorganic compounds, there is a great difference as regards assimilability and therapeutic efficiency. The most natural combination of iron, and that which gives the most prompt and marked therapeutic effects without in the slightest affecting gastric or intestinal digestion or influencing the color of the teeth is the *peptonate,* and the particular preparation of the peptonate which is best suited for administration in all anæmias where iron may be expected to be of service, is the combination of the peptonates of iron and manganese known as *Gude's Pepto-Mangan.*

I have had the opportunity of testing the efficiency of this preparation of iron in a large number of cases in both private and hospital practice, and have found it the most satisfactory iron compound that has come under my notice. It is not at all constipating, its taste is not astringent, so that it lacks the great disadvantage of most other iron compounds and preparations, and is entirely palatable. It never causes any gastric or intestinal disturbances so prominently present in many cases in which other iron preparations have been used. As regards its therapeutic efficiency there can be no doubt, and the uniform approval with which it has been received and used in the best clinics throughout the world is sufficient proof that it is a trustworthy means of administering iron so that it is directly absorbed into the blood.

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Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. M. PATCHEN, M.D.

THE PROS AND CONS OF THE HARMFULNESS OF SUGAR.

THIS, like many other subjects pertaining to the food question, has two sides, each represented by numerous advocates and disciples. The partisans of both sides, in addition to whatever theories they may advance, rest their case upon one or more isolated instances, easy to find, in which the use of sugar has been followed by the very effects which they respectively claim it always produces.

Although the discussion has been going on, with more or less interest and activity, for a number of years, it is far from being settled in the public mind. Nor will it be settled until we possess additional and more reliable knowledge of the physiological action and effects of this almost universal article of diet. In other words, not until it has been scientifically demonstrated whether, as is the case with some varieties of mushrooms, sugar really contains ingredients or qualities injurious in itself, or whether, like starch, its effects are either good or ill according to the quantity taken and the physical condition and environment of the partaker at the time of its ingestion.

It is evident that, if every one possessed the same knowledge of the subject, no difference of opinion would exist. The following articles, pro and con, selected from periodicals of recent date, are reproduced that those possessing but little knowledge of the subject may gain more, and that prejudiced or extreme partisans of either view may be brought face to face with the statements, arguments and inferences which have proved so satisfactory and convincing to the other side, and be induced to give them proper consideration.

The first is a newspaper clipping, the author of which, although bold enough to advocate in a very fearless manner the harmlessness of sugar, is nevertheless too timid to sign his name. By reading between the lines one could easily be persuaded to believe him to be either a sugar manufacturer or a candy maker:

"GIVE YOUR CHILDREN SUGAR."

"The belief that sugar ruins the teeth of children is utterly groundless. Indeed, how the idea ever came into existence is a mystery, seeing that the finest, whitest and strongest teeth are found in the mouths of negroes brought up on sugar plantations, who from their earliest years upward consume more sugar than any other class of people whatever.

"Those who are in any way skeptical of the value of this fact have only to look around among their personal friends and see whether the sugar eaters or the sugar shunners have the finest teeth, and they will find —other things being equal—that the sugar eaters as a rule have the better teeth.

"The only way by which it is possible to account for this libel against sugar seems to be by supposing that it originated in the brain of one of our economically inclined great-grandmothers, at a time when sugar was very dear, in order to prevent her children gratifying their cravings for sweets at the expense of the contents of the sugar basin."

What immediately follows, in the same vein, but even more positive and convincing, is from the facile pen of Dr. Thomas J. Hudson. They are extracts from his new book, "The Law of Mental Medicine," and by them he endeavors to prove that "the luxuries of the table should never be denied to children on the ground that they are hurtful." He claims that by the "suggestion" induced by such a course of action "the seeds of the disease which has distinguished us as a 'nation of dyspeptics' are sown in the minds of our children." And this outrage is "sure to be followed by its legitimate consequences, namely, a disordered stomach and weakened powers of digestion."

But he does not stop with this general statement. He insists that the "appetite of the average child is not only a good measure of its digestive powers, but its 'longings' are the best evidence of its needs."

In regard to sugar he has this to say: "The truth is that children have an appetite for sugar because they need sugar—because of a deficiency in the physical organism of the element which saccharin matter in some form alone supplies. Nature cries out for it with an insistence proportioned to its necessities, just as it cries out for water when the supply of that element is deficient.

"The obvious lesson is that when a child develops a strong appetite for sweets, instead of filling its mind with false suggestions as to the hurtfulness of what it craves it should be given free and unlimited access to the sugar-bowl. Nothing is more nutritious than sugar, and few things are more easily digested and assimilated." And again: "Few children who have a strong appetite for sugar have ever been injured by giving it to them in practically unlimited quantities. On the other hand, many such have been grievously injured by being deprived of it and I have known weak, puny children to be rendered strong and robust by satisfying what appeared to the mother to be a morbid craving for sugar."

This is a strong endorsement of an already favorite article by one whom we certainly have no reason to suspect of being in any way personally interested either in its manufacture or sale. But are the statements true? Can they be depended upon? Do they agree with the experience of the majority of unprejudiced observers? He speaks in no uncertain tone and with an air of authority, but of how much experience and observation his assertions are the result we have no means of knowing. Were this celebrated writer and author a medical instead of another kind of a doctor, would he entertain and advance the same ideas and opinions concerning the wholesomeness of sugar that he now does? Perhaps. Because many physicians can be found who will endorse everything he has said. In fact it would not be surprising to learn that every assertion Dr. Hudson has made is based upon information derived by "suggestion" from some physician in whose knowledge and judgment he has the greatest confidence.

Having heard the arguments the friends of sugar have to advance, let us listen to what its enemies have to say. Their side of the question will be first represented by a physician, Dr. John F. Wetzel, of San Francisco, who evidently has made an extensive study of the subject. In the current number of the *Medical World* he makes the most serious charges against sugar, going so far as to accuse it of being the cause of a modern nerve disease, which he describes, and to which he gives the name of "saccharimal." Hear him:

"This being a newly discovered disease, and probably never having been written upon by any other physician, no synonyms are in use.

"Saccharimal may be defined as an alteration in the function and properties of many tissues and fluids of the body, especially the nervous system and the various organs influenced thereby, due to the ingestion of saccharin matter in quantities beyond the capacity of the organism to appropriate.

"Its origin, cause, clinical history, and nature are clear, but its special pathology is similar to many conditions as those caused by prolonged intermittent stimulation, such as alcoholic excesses and other drug habits, etc.

"The morbid anatomy has not yet been investigated, but no doubt histologic study will show primary congestion followed by secondary anemia, at last succeeded by permanent tissue change of glands and organs similar to the changes caused by alcoholic excesses.

"The etiology being clear, the prevention, management, and removal of the disease is rendered possible. The cause is internal, ordinary, and exciting. It is internal because sugar is ingested that causes the symptoms. It is ordinary because all of us are more or less exposed to it. It lurks in all sweet cake and pastry; even breads are contaminated to an uncertain extent with it. Puddings, pies, ice-creams, chocolates, also cocoa, and many other table drinks contain it. Even pickles and catsup are not free from it, to say nothing of its wholesale use in candy and confections. To one who has an idiosyncrasy to sugar, making it a poison as well as a stimulant even in minute quantities, it is almost impossible to eat and live in comfort. It is exciting to those who have that peculiar diathesis, whether inherited or acquired predisposition. Sugar may be used by them merely because of its agreeable taste, or from habit, or because of a craving for stimulants which sugar will temporarily satisfy. As an acquired habit it usually begins in childhood, although it is not confined to any particular age. The femals sex, being largely excluded by public opinion as well as by legislation from sources of alcoholic stimulation, are most given to sugar excesses. It is largely confined to the so-called civilized races, as they alone are subject to the exciting cause.

"The clinical history of this disease includes a vast array of symptoms which are not pathognomonic, but which are common to many diseases. The prodromes are both subjective and objective. The person influenced has at first a feeling of stimulation; she (I say she because it is usually a female) is exhilarated; she wants to talk or move about; she feels happy and contented; desires to sing or to play. Slight aches and pains are removed; twinges occur, if at all, less frequently and with less severity; cravings are appeased, and if previously hungry the desire is satisfied. The objective signs are very similar to those of any other stimulant in either sex; the eyes brighten, the volume and rate of the pulse are increased, the face flushes with a rosier hue, ideas are more imaginative and words flow more freely; her playing and singing will be more spirited. This stage will last only a few hours, to be followed by corresponding depression, languor, even neuralgic pains, and a craving for more stimulation, but she may not know what. Her friends see that she is listless, peevish, fretful, and disinclined to either mental or physical exertion. The gravity of these acute attacks will be in direct ratio to the amount of sugar ingested and the idiosyncrasy of the patient. Their number and severity will determine the extent of the morbid habit developed.

"As the disease becomes chronic, certain other symptoms are developed; headaches, neuralgia, earache, toothaches, myalgias, flashes of light (even with the eyes shut) usually zigzag in shape, dimness of sight, even hemiopia at times; attacks of nasal catarrh, with occlusion of either naris; indigestion due to chronic gastric catarrh, eructation of gas, hyperacidity of stomach, etc. The stomach may be emptied by vomiting, and in an hour or two it will be full again and yet again, after which the full tense pulse, flashes of light, headache, etc., will pass away, leaving the patient weak but well.

"The following symptoms occur: palpitation of the heart, a sinking, all-gone feeling, and at times angina-like pains, hypertrophy of the liver, followed by atrophy, yellowish, dirty-colored skin and eyes, constipation , following looseness of the bowels, until physic is habitually resorted to; decaying teeth, mouth clammy in the morning, breath fetid, morning appetite absent, sleep disturbed, awakes tired and miserable, and unfit for the duties of the day; pains in the small of the back, weakness of the limbs, energy quickly exhausted, unable to concentrate the mind, despondent and irritable, even suicidal tendency. All these symptoms may not be manifested in each case, but some cases will manifest many more; in fact, all the long array of symptoms attributed to the various neuroses, as a neurasthenia, hypochondria, hysteria, etc. Even the gravest diseases may be mimicked if not actually caused by sugar, not oxidized, circulating in the blood and other fluids, and poisoning all the tissues of the body.

"The secondary processes set up by the alternate stimulation and depression of all the glandular systems first cause hypertrophy, later followed by atrophy, until no secretion is normal in amount or function, after which a cure cannot be accomplished, even if the patient can be influenced to give up her sweets, any more than the chronic alcoholic can be cured by the quitting of his accustomed stimulant.

"Death seldom occurs directly from sugar, but the poison may cause death from anemia, asthenia, or even coma from uremia.

"The diagnosis of saccharimal is not difficult when you have a comprehensive knowledge of the symptoms and the fact that sugar will produce them; however, a direct diagnosis is not so easily made as a differential one, or even one by exclusion.

"The prognosis will usually be favorable as to the symptoms manifested, although not without partial or total abstinence from sugar.

"The treatment must be palliative and prophylactic. Some persons cannot eat common bread containing very little sugar, even an unnoticeable quantity, without feeling out of sorts for two or three days, after a very slight preliminary stimulation lasting only a few hours. I have known a case whose urine would go down in specific gravity to 1,000 the next day after taking less than a teaspoonful of sugar. In two or three days it would be 1,020, and remain normal until sugar was again administered. In capsules, without the patient's knowledge, the result was always the same as if taken at her own pleasure. In this case prophylaxis meant absolute abstinence from all forms of sugar, including saccharin, during which time all symptoms were entirely absent.

"Any treatment that improves oxidation is valuable, as deep breathing, outdoor exercise, or even indoor exercise. Baths, massage, etc., all have their value. The static machine gives excellent results (in my experience) no doubt due to the formation of ozone all over the surface of the skin, which is absorbed, and thus supplies the oxygen in a very active state.

"In the way of drugs, some cases are benefited by papoid, which assists the splitting up of the sugar. Alcohol before meals supplies a want, prevents fermentation, and allays the craving for sugar.

"John F. Wetzel, M.D."

While it hardly seems possible that this terrible arraignment against sugar can in every detail be either justifiable or true, there is evidently more truth and justification in it than those whose knowledge of the subject is less practical and extensive, believe. At any rate, the public at large should be thankful to Dr. Wetzel for making known what he believes to be the facts in the case. His statements will do much to stimulate investigation by both sugar eaters and sugar shunners, and in this way the exact truth in the premises will be all the sooner ascertained.

The next and last evidence we have to reproduce is an editorial in the *Pacific Health Journal,* entitled "Cautions Regarding the Use of Sugar." While admitting and pointing out a number of injurious effects produced by sugar, it gives in each instance the physiological reasons for this action. It is, therefore, to the general reader a much more satisfactory and instructive article than its violent predecessor.

"While sugar is more digestible than starch, and is more rapidly utilized by the muscles when overworked, it cannot be used by the ordinary healthy person in such unlimited quantities as starch. One investigator reports that foods containing one and one-third pounds of starch (equivalent to two and one-half pounds of bread or six pounds of potatoes) can be digested without difficulty during considerable periods of time.

"Another investigator observed that the use of two-thirds that amount of sugar daily for some time disturbed his digestion very much. Of course, no generalization made from single cases is of great importance.

"A former paper called attention to the fact that sugar, being so readily absorbed, if it is eaten in large quantity, is taken into the blood faster than the liver can store it up, and it has to be disposed of at the expense of the secretory organs, which are in this way prepared for premature breakdown. The tendency of large quantities of sugar or sweets to ferment in the stomach was also referred to.

"The action of concentrated solutions as an irritant was also mentioned. In proof of this may be given the work of a German scientist, who found that a 5.7 per cent. solution 'reddened the mucous membrane; a 10 per cent. solution made it dark red, indicating irritation; a 20 per cent. solution caused the dog such distress that the experiment was carried no farther.' Undoubtedly the use of sugar in concentrated form, as in candy, has a similar effect on the human stomach. There seems to be no proof that sugar to the amount of three ounces a day is injurious to the healthy, active adult, and the belief that it is injurious to the teeth seems to be without foundation, except as it is eaten in such quantities as to impair the digestive forces and lower the vitality. Starchy foods, which sometimes form lactic acid through the action of germs, are far more a menace to the teeth, as the sugar, being soluble, is necessarily washed out of the mouth by the saliva, while particles of starchy food may remain for some time in a decaying condition between the teeth. The negroes of the West Indies, who consume great quantities of sugar, are said to have the finest teeth in the world. The finest set of teeth the writer ever saw was in the mouth of a Jamaica negro.

"From what has been said regarding the use of sweets in concentrated form, parents will recognize the folly of permitting children to use candy in anything but minute quantities, especially as many candies have coloring matter and other ingredients which are more harmful than the sugar.

"But children, being very active, require large amounts of carbohydrates. In what form shall it be given them? While on a milk diet the child receives a considerable amount of milk-sugar, which is equivalent to cane-sugar in nutritive value, but is inferior in sweetening power. It seems, however, to be better adapted to the infant stomach than cane-sugar. On account of its slight sweetening power, children accustomed to use sweets sometimes refuse milk, and thus get an excess of carbohydrates with a deficiency of tissue-building material, which, if uncorrected, finally results disastrously to the child.

"Another thing to consider about the free use of sweets is the danger of establishing a capricious appetite, not satisfied with foods of mild flavor. Such an appetite is always a snare to its possessor, and is apt to be the precursor of a lifelong dyspepsia.

"For older people the tendency is also to use too much in the line of sweets, pastries, and puddings, in place of simple articles of food.

"The soldier on a hard march and light rations can use large amounts of sugar with impunity, and the Canadian lumberman, exposed to severe work and rigorous weather, can dispose of amazing quantities of molasses and fat pork without difficulty, while the same persons taking a rest during the summer months will contract severe indigestion on such a diet.

"Sugar, then, is a proper food, if used in moderate quantity, in proper combination, and at the right time; and the nature of the climate and occupation will indicate what is a moderate quantity."

Before closing this already long but interesting discussion, the writer would like to submit for the reader's consideration some facts, statements and opinions which may help to explain and harmonize seemingly conflicting testimony.

The facts are:

1. That cane-sugar—the sugar of the table—does not exist, as such, in nature. It is a man-made instead of a God-made product, and, although composed of food elements, these have been so changed by the chemical action of which they are the result, that it is quite a different substance from milk sugar, fruit sugar, grape sugar, or pure honey. These latter are of the character of dextrose, the saccharine elements in which are less concentrated than those contained in cane sugar, and, therefore, more easily digested, more bland in their action, and less liable to be taken in a quantity which amounts to excess.

2. That all the sugar which the system really needs and uses to the best advantage is manufactured for this purpose, in just the quantity needed, by the system itself from the organized food products which are consumed.

As already intimated, by the use of cane sugar the saccharin element is easily and often unconsciously introduced into the system in excess, and the tendency of excess of any food element, however harmless in itself, is always to work an injury to some part or function of the body.

3. Sugar is never a necessary article of diet. Alone it is neither able to replace worn-out tissue nor to support life for any length of time. Its digestion and assimilation, it is true, supplies the body, to some degree, with both heat and vital power, but these results are produced by the digestion and assimilation of any article of food. Moreover, sugar is comparatively a modern product. Our remote ancestors lived without it, and history has left no record showing that, in any way, they were our inferiors.

4. Although sugar contains no poisonous ingredients it is negatively harmful, producing injurious effects in two different and effective ways. First, by its seductive palatability causing more food to be eaten than is required by the physiological law of nutrition that supplies must never exceed demand. The consequences which inevitably follow the repeated violation of this law are too well known to require mention. Second, by the great chemical affinity which exists between sugar and oxygen. When sugar in a soluble form reaches the blood—the storehouse of oxygen—it takes unto itself, by chemical combination, so much of the available oxygen that, in the case of those whose capacity and use for oxygen is below the normal, too little is left to oxidize properly the carbonaceous and nitrogenous elements of food upon which the system depends for nourishment. Not only is the system deprived of the benefit it would have derived from the digestion and assimilation of food which the presence of sugar has made impossible, but these unused supplies, failing to receive vital protection, deteriorate and become a constant source of both obstruction and irritation.

In the writer's opinion the legitimate deduction from the facts presented is that sugar is a luxury and should be used with the caution which can only come from knowledge. As the environmental luxuries of life exhaust the financial resources of their possessor, and for this reason are possible and enjoyable, beyond a limited degree, only to those who possess an abundance of wealth, so sugar is an *internal luxury* which exhausts the vital wealth of the system so rapidly that it should be used but little by those whose fund of vitality is impaired by heredity or later influences.

Persons having a good muscular development, and who lead an active out-of-door life, can use it freely without detriment because they possess so much oxidizing power that its use interferes in no way with the digestion and assimilation of all the food the system requires. Those, however, who lead a sedentary life, and especially if much of their time is spent within doors, must indulge sparingly, if at all.

It is to be hoped that from the facts, deductions and opinions contained in the various contributions to the subject under discussion, the reader will have acquired a true idea of the nature of sugar, namely, that it is not altogether good, as many think, neither is it an unmixed evil, as others believe. And, further, that the reader will possess such discriminating knowledge of the effects of sugar, under the various conditions of life, that he will be able to enjoy its seductive pleasures at times and on occasions when they will do him no harm, and abstain from its use when the circumstances are such that injury is sure to result.

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RESTRICTED VIEWS OF PELVIC DISEASES, AND THE MEDICAL CONSEQUENCES.*

By G. H. Taylor, M.D.

Perhaps the lesson it is desired to convey will be best understood by using an illustration.

The too heavily freighted hoist of a warehouse, being worn and weakened, finally yields to its burden; the car crashes down an undistinguishable mass of ruin.

The proprietor, all absorbed with accounts, trade and expected gains, does not trouble himself with a personal investigation of the disaster, but believing that the judgment of a specialist is better than his own, summons a skilled mechanic to make a *diagnosis* and the necessary repairs.

He is a carpenter. The broken pieces are brought together, the disjointed frame is reunited; it looks strong, and the machinery is ordered to start. But the car refuses to leave its place. Something is lacking to restore the working qualities of the original mechanism.

The owner becomes convinced that he has employed the wrong mechanic. These convictions were conveniently assisted by a professedly interested neighbor who assures him it is *not* carpentry, paint and varnish that are required, but *jack screws* to raise the broken car bodily up to its normal position, then nothing more could possibly hinder resumption of service.

After this plausible theory was worked out and had proved a practical failure, *another,* apparently more plausible, was at his service. According to this, it was neither the restoration of local defects or screwing into position that was needed, but strengthening of the weak and bulging walls of the passage way. The proper mechanics were next employed to place strong sustaining bands about these walls to hold them together against any mischievous interior force. After the futility of this expedient had been duly demonstrated by abortive attempts to move the machine, various others, claiming plausibility, and having, perhaps, actual merit, if co-related with certain segregated defects of the mechanism, were tried. A pulley here, a ratched there may be restored, but perfection requires that these be unified in a common consentaneous bond of action. Not only must each part be in its place, but it must be there as a working factor of the whole.

To complete the lesson our illustration is intended to convey, order was finally brought out of chaos, not by removing debris, not by remedying local and specific *consequences* of the accident by special and local experts, but by an outsider, presumed, by such experts to know nothing, because he saw the whole previous to viewing the parts. A passing stranger, straying upon the scene of action, who could look above as well as below, at once deftly joined the parted ropes or substituted sound ones, and then made ready the motive power and the long drawn agony, now seen to be quite unnecessary, was over.

Easy is it now to see that *if* the roving stranger had paid his rather impertinent visit earlier, a world of time, worry and expense might have been saved to the owner.

Not unlike this is the experience of invalid women in search of health. Too engrossed with other concerns than that of knowing something of their own needs, when health fails they are the ready victims of a variety of special aids to local restoration, all of which, however, omit the main dependence, without which all such proffers are illusory. These recourses and local expedients resemble the attempts of a gardener to restore a fading plant by removing the numerous fading leaves instead of watering and digging about its roots, and thus fortifying the vitality whose deficiency causes the threatening appearances.

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* A post-humous paper.

The demonstrable facts respecting the cure of all varieties of malposition of the pelvic organs and of all diseases which are the consequences and products of hyperæmia, such as sub-involution, hyperplasia and its varieties, or of aberration of function, as dysmenorrhœa, are curable by *simply removing their producing causes.* These are nutritive and mechanico-physiological.

These producing causes are, in general, of such nature as cannot be legitimately met and remedied by the operation of any form or administration of drugs, however proper palliation may be in either case. Their use for *actual cure* (as actual remedies) is as misapplied and as inefficient as it would be in setting a broken bone.

As to local medication and local support, however applied, these only aim at effects, and their radical influences are too trifling to merit consideration. In the process of *real cure* these are found to be simply needless unless, indeed, it be sometimes politic to use them in deference to the prepossessions of the invalid.

The *obstacles* to the successful applications of the principles above stated, and of their universal adoption, lie in two principal directions. The first obstacle is the patient herself.

The class of diseases of which the pelvic contents are the seat, spring, more than all others, from the lack of acknowledgment by the sufferer of *rational* causes therefor. To understand and appreciate the causes is mainly to obviate the effects, and since effects cannot exist without causes, the ultimate result is cure in the most radical and thorough sense if it chance that the needed understanding comes late.

Irrational creatures are so organized that affections of the pelvic contents are an impossibility. Mechanical conditions are in unceasing operation which effectually prevent their occurrence.

With rational beings these affections are providentially possible, and must be regarded as one of the advantages of women's position in the scale of being. Her mechanism confers eminent advantages, and not the least of these is the wider scope of the understanding rendered necessary by her bodily mechanism and its relations.

These advantages are, however, thrown away when, in the place of knowledge and reason, she substitutes feeling and emotion as the guide of conduct. It is this substitution that renders her the prey of local disease instead of the immunity therefrom, which is her privilege.

The obstacles which oppose physicians in combating disease of the pelvic contents upon radical principles are numerous, and collectively so formidable as to be well-nigh insurmountable.

Among these obstacles may be mentioned the narrowness of the schools in which he is taught, and of the technical reading by which his course is directed. In other words, his preparatory study practically limits him either to the use of remedies whose influence may be in the right direction but so inefficient that they fail to meet the needs of these cases, or to treatment whose effect is merely palliative and mischievous because it keeps out of view the real difficulty and the cause of suffering. Little or no recognition is had of mechanico-physiology whose deficiencies are the source from which this class of diseases spring, and are, therefore, the only legitimate object of remedial attention; nor is any regard paid to the remedial principles involved in the direct transmission of energy to deficient parts or functions or to the transformation of this energy within the system whereby the usual nervous complications are satisfactorily controlled.

This kind of preparation practically confines his resources to topical medication, local support, and general medication, or to specific medication or, perhaps, these combined.

In either case, the very element whose defect was the source of the affection, and which renders medical aid necessary, is omitted from the list of remedies used. The physician applied to knows but little of mechanico-physiology, and has no familiarity with the means which are adopted to restore the defects at the bottom of the symptoms he treats and without which these cannot exist, and beside which in importance the prescriptions he makes and the efforts at local correction he affords are unspeakably weak and inconclusive.

This difficulty on the part of the physician is remediable. Every physician can learn how to remove pelvic hyperæmia and its almost infinitely varied consequences, whether they fall upon the uterus, ovaries or rectum. Every physician can learn how to confer support to the pelvic contents so effectual, thorough and permanent as to remove deformities of the womb, such as incurvation and malposition, far easier than he can correct the false education and the morbid emotional nature of his patient.

For philosophy is not, in general, the vocation of his patient. On the other hand, she is not infrequently as unreasonable as she can well be. Her ill sensations and feelings and the emotions rise together to a lofty standard. It is not a *cure* that she really seeks of the physician, *but the removal of her ill feelings.* She is even very well content with an abatement of her *consciousness* of ill feeling. If the effect be temporary, she is a subject for indefinite repetition of any means of securing this end, but is indisposed to retrace the steps which have led to and which continue to produce consequences in the pelvic region from the effects of which she perpetually seeks relief.

From this condition of things the necessity follows that the physician must take his cue from his patient.

She *will have* immediate relief, if not at his hands, why, then, at some other. She dictates the problem to be solved; he has no alternative; he must either forsake his vocation and the good he might in some cases be allowed to do, or he must prescribe for the individual sufferer as he finds her, and *not* as his high estimate of female character would have her to be. He is thus compelled to forego radical claims and radical cures of these multiple and multiform affections. But he has one consolation. The alternative thus forced upon him is not incompatible with his pecuniary interests. So he and his successors will continue to palliate and relieve, and thereby to please his patient and to receive the substantial gratitude which enables him to support his family, which may be more personally desirable than to place his patient beyond the need of his continued ministrations.

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CONCENTRATED FRESH AIR.

There is an old Scandinavian fairy tale about a woman who tried to catch sunshine in her apron so as to introduce it into her house, and, amusing as the notion seemed, the scientist has at length made it a possibility. Quite as improbable, too, was the notion that fresh air could ever be transported in a concentrated form from one place to another; yet a French savant has recently made genuine fresh air tablets, thus solving a problem hitherto considered insoluble. The scientist in question was investigating acetylene when he made the discovery that he could combine certain chemicals into a tablet, which, on being dropped into water, dissolved, and gave forth pure oxygen. The value of this discovery can scarcely be overrated, since, by its use in submarine boats, mines, or in diving, it may be instrumental in prolonging human life. Even in our dwellings, when inclement weather prevents window-opening to any great extent in sleeping apartments, schoolrooms, theatres, concert-halls, factory, and, above all, in hospitals and large drapery establishments—where ventilation is usually miserably inadequate—these fresh-air tablets would be of incalculable utility. It is to be hoped that their cost is small enough to enable them to be generally used.

Trained Nurse

WORDS OF ADVICE TO NURSES.

By Esther H. Young.

When you get your promotion, remember you are put over "pros.," and you are expected to teach them and they must be obedient to you and treat you with that respect to which allusion has been made. But you, too, have your part; be patient with your subordinates, even as you expect your superiors to be patient with you. Avoid flattening remarks such as these: "I've told you so before," "I have shown you how to do this heaps of times." Teach them how to wash a patient, how to clean other people's nails, how to "do heads," how to make beds and shake pillows without shaking the patient. Show them how to measure medicine accurately, how to take temperature, pulse and respiration. But though with firmness and decision yet let all this teaching be done with patience and gentleness; remember that they really do not know, and even forgive them if they have forgotten. Instill into your young "pros." such a spirit of care that they will really give their mind and attention to the details of their work, and so become less careless or forgetful. So much depends on the sister of the ward; the responsibility of her example is very great, and her influence affects the whole tone of the ward. Each has a little world of her own. So many sick folk with bodies. souls and minds to be cared for; doctors, senior and junior, to work for and with; patients' friends and relations; other visitors; head nurses and "pros." They are responsible for the well-being of all, and must take the blame of all mishaps, big and little, which occur in their domain. This their juniors do not always realize; but it is so, just as the matron is responsible for the well-being of the whole, and is to blame for all errors and accidents in nursing throughout the hospital.

Think of this now, and remember it later when you are a sister. Have patience and tact, then, in managing your nurses. If a sister is careless, all the nurses in the ward will be the same. If a sister is too familiar with the men, all the nurses will follow. If "Sister" does it, it ought to be right. If Sister wastes things, the nurses of course will do the same.

Now to those of you who, when trained, become private nurses. Go forth to nurse people in their own homes with the firm intention of entering into the lives and interests of each man, woman or child to whom you are sent, really caring for him or her. "I wish I was not going to be a private nurse." "I shall hate private nursing, and I am not going to read to those sort of people, and curl their hair and fad them up."

"Those sort of people," though not hospital patients, need as much and even more care of their bodies, souls and minds. When you go into a house be ready to do anything for your patient, anything that will help him to recover or add to his comfort. Don't be a smart right hand to the surgeon and on your dignity at all other times. Make friends with the cook, speak politely to the maids, consult the near relations of your patient as to likes and dislikes. Win the whole house. This is part of private nursing, and in so doing you will much more easily win and so manage your patient. Be ready to read anything to him or her; be ready to curl her hair, or tie his ties; to go out with them, to shop for them. Take your hospital knowledge, but drop the "red tape" necessary to an institution. Don't look upon relations as "pros." and servants as ward-maids. Nurses may do so much good in a house, but many do so much harm. Be tactful, be kind, be humble, be patient, be strictly obedient to the doctor under whom you work, and never discuss his treatment. Never talk of one patient to another, nor of anything the patient tells you to others in the house. All they say to you must be held by you as sacred. Interest them, if well enough, in all that goes on, and take an interest in their work or special talent, or whatever they care about most. Don't talk in your patient's hearing of him or her, don't show them that you think their cases "slow," never tell them they are hysterical though you may think so. Or, if you take up district nursing, remember an Englishman's cottage is his castle.

You must insist on cleanliness. You may have to encounter much dirt and perhaps rudeness, but the latter is not often the case; go gingerly to work; don't listen to the unpleasant remarks; don't show disgust about the dirt, but get rid of it all the same. Sweep, dust, scrub, and let them think it is just a fad of yours. Be interested in the children and in the work. Be firm on certain necessary points for the patient, but don't ride rough-shod over the bread-winner or "missus." Honor them in little things. Their gratitude is so touching—if you seem to do very little good sometimes because they in their ignorance will undo all your work, yet that little, and the presence of nurse may do so much to brighten, help to refine their lives. Don't get tired of those endless legs which never get well, or grannies with chronic bronchitis, or paralyzed crotchety "daddies," don't compare them with your cases in hospital. Enter into the lives of each one, and try to care for them sincerely. In conclusion—to one and all, private or hospital nurses, junior "pros." or sisters—let me earnestly recommend carefulness in speech. My dear friends, I beseech you, I entreat you, be careful what you say. Never by any chance repeat what you hear about any one. We all say foolish things and make unguarded remarks and dissect each other's characters.

In our haste how often we say unkind things! Once said, they may do very little harm; repeated even to one person—one supposed safe person—may do untold harm. These repetitions are hardly ever quite accurately given, and it is most dishonorable to listen to tales. It is intentional mischief making when we carry tales from one to another. "Listening to the latest" is such a great temptation in hospital life, and "listening to the latest," or repeating the "latest" may work the ruin of a life. The temptation yielded to in early hospital days grows. As seniors the habit is incurable, and the harm done by it is incalculable. Avoid chattering. If you think it necessary to report to a senior about a fellow-worker, be honest, and first tell that fellow-worker what you intend to report. You may find that what you intended to report to that superior was utterly untrue. Give your fellow-worker a chance to speak for herself. Be straightforward, and you will be saved from doing untold harm.

By these few words I have tried to help those who aim at becoming nurses, in the highest sense of the word, and I would conclude by reminding you of the key-note of a true nurse's life.

It must be charity—love. I would impress this the more strongly because I think the temptations against perfect charity are even greater for those in training than for others outside hospital. Nothing so mars hospital life as this lack of charity in pupils or teachers.

"Therefore give us Love."

—*The Hospital.*

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PHYSICAL CHARACTERISTICS OF CARNEGIE.

"Few men would accept Andrew Carnegie's horror of death with all his millions," said Jas. H. Bridge, formerly secretary for Mr. Carnegie. "Mr. Carnegie's horror of death is literally unspeakable, for he never allows it mentioned by any of his own circle. If others speak of it he quickly moves out of earshot. Mr. Carnegie's height is only five feet four inches.

"This slight physique, by debarring him from rough sports of youth, has given a peculiar twist to many of his ideals.

"He dreads pain, and turns pale at the sight of a drop of blood. The manly attributes, especially glorified by the Scotch race, he holds in contempt. With him muscular strength is brutal, physical courage a relic of barbarism, and masculine beauty a sign of intellectual debility."—*N. Y. Journal.*

Book Reviews.

Progressive Medicine. Fifth Annual Series. Volume II., June, 1903. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 427 pages, with 46 illustrations. Per volume, $2.50, by express prepaid. Per annum, in four cloth-bound volumes, $10.00. Lea Brothers & Co., Publishers, Philadelphia and New York.

It is hardly possible to describe these quarterly issues in sufficiently apt and emphatic language to enable a physician who has not personally inspected one of them to form an adequate opinion of their intrinsic merits. Mere abstracts of current literature are easily arranged, but they are comparatively worthless. These volumes are prepared by experts in each department, men who know what to select and what to reject, how to both edit and digest. Hence they include only that which is of scientific and decidedly practical value

For example, the article on "Surgery of the Abdomen, including Hernia," is one which no surgeon should miss and which is scarcely less instructive to the physician who seldom or never operates, since he must be a ready diagnostician in all the principal diseases of the abdomen in which surgical interference may eventually be called for.

Equally important is Dr. Clark's paper on Gynecology. Cancer of the Uterus is thoroughly discussed in the light of recent advances in this branch of medico-surgical science.

Dr. Stengel sums up the latest facts concerning Diseases of the Blood, including the recent developments as to the important role of the ductless glands.

In view of the radical advances in this direction made within the last semi-decade this section is intensely interesting.

Dr. Jackson, in the section on Ophthalmology has done as much for the practising physician as for the specialist. Many eye troubles of a general or special character fall within the province of the general practitioner, and in this careful compend of Dr. Jackson the medical man who does not follow ophthalmology will find a safe and satisfactory guide.

As a whole the volume is amply illustrated, conveniently arranged and elegantly executed.

As a practical exponent of Progressive Medicine its title is amply warranted.

The Care and Feeding of Children, *a Catechism for the use of Mothers and Children's Nurses.* By L. Emmett Holt, M.D., LL.D. Third edition, Revised and Enlarged. New York and London, D. Appleton & Co., 1903.

This handy and compact little manual is dedicated to the Young Mothers of America, and it supplies to mothers and nurses a safe and ever ready guide. All the essential points that arise in the daily care, feeding and management of infants and young children are succinctly and satisfactorily treated. Dr. Holt's extensive experience makes his advice eminently reliable. Every mother in the land should have a copy of this little book.

A Handbook of Appendicitis. By A. J. Ochsner, M.D., Prof. of Clinical Surgery, College of Physicians and Surgeons, Medical Department of the University of Illinois, Surgeon to Augustana Hospital, etc. Chicago, G. P. Engelhard & Co.

Dr. Ochsner has had ample opportunity to qualify him for the production of this modest little handbook on Appendicitis.

Contrary to some very recent claims by Sajous and others, the author, in his Introduction, assumes that, "In a state of health it was plain that the organ [appendix] need not be considered from the standpoint of physiology," therefore every surgeon who has occasion to open the abdomen for other causes than suspected appendicitis is warranted in arbitrarily removing the useless and dangerous organ.

Many good surgeons do not advocate this practice.

The author very succinctly passes over the Anatomy, Etiology and Classification of the disease. Chapter V. is devoted to the Symptoms, and within 14 or 15 pages states practically all that need be said on this topic and states it well. He believes that the four symptoms, *Pain, Tenderness, Rigidity of the Abdominal Muscles,* and *Temperature,* on which stress has been laid by every operating specialist, will, except in rare cases, suffice to render the diagnosis comparatively positive, "provided the physician or surgeon has once become familiar with these symptoms by clinical observation."

Chapter VI. deals with the Differential Diagnosis, and very lucidly points out the various other lesions which may be mistaken for appendicitis.

In Chapter VII. the subject of Non-operative Treatment is considered, and the author's estimate of its importance may be inferred from the fact that he places it first in order, and devotes as much space to its consideration as to Surgical Treatment which follows in Chapter VIII.

Prof. Ochsner does not believe that every laparotonist is necessarily competent to remove the diseased appendix. In short he thinks there are thousands of surgeons who are otherwise competent, *i.e.,* in gynecology, etc., whom he would not trust to remove his own appendix if it were needing operative interference.

The strong point urged in non-operative cases is *fasting,* and next to this the avoidance of opiates. Most emphatically does our author combat the doctrine that appendicitis is a surgical disease from beginning to end and under all conditions. In all cases when a thoroughly competent and experienced operator is not at hand intelligent non-operative treatment "will give infinitely better results and a much smaller mortality."

In the face of much that has been urged by other authorities this statement may be considered as fairly reactionary and rationally conservative.

Our author relies on fasting and lavage from the outset, these measures to be followed by rectal feeding until the inflammatory action has been fully subdued. Under this treatment pain quickly subsides. If the author had added the application of generous plastic poultices—essentially earth poultices with glycerin as the menstruum—applied hot and frequently renewed, we should consider it ideal treatment, and under it we should enthusiastically expect 90 per cent. of all cases to recover.

Chapter VIII., on the Surgical Treatment of Appendicitis, is a model of concise statement which some of our verbose writers would do well to study and imitate. The author urges prompt operation in all acute cases of severity when the diagnosis is beyond question and a competent operator with proper facilities and ample assistance is available. He has his own opinion as to the length and direction of the required incision and of the general technique of the operation, in connection with which he counsels conservatism rather than rashness, and the adoption of sensational or revolutionary methods.

After-Treatment and Complications are sensibly disposed of in Chapters IX. and X., and these are followed by a comprehensive bibliography of authors cited.

The work is one which can not but prove of value not only to the operating surgeon but to every practising physician who ever expects to encounter a case of appendicitis. It will help him in case of a doubtful diagnosis and prove a sheet anchor in non-operative treatment.

Notes and Queries.

Query 148. Medical journals give us no lack of vague and general advice as to bathing, but while these glittering generalities are frequently repeated, they seldom enter into details, and are really perplexing guides as to the external use of water. Every intelligent individual in this age of hyper-hygienic agitation has a proper sense of the utility of water and soap for ordinary cleansing purposes; but even fairly well-read medical men have only indefinite and unsatisfactory ideas of the kind of bath, its temperature, duration and best time of administration, in order to promote a desired result. Certainly some practical suggestions on this topic will be legitimate to this department, and I hope your editor, who needs to be a walking encyclopedia, will find time and disposition to air his views, observations and ideas.

G. A. W., Ohio.

Answer. It is a volume and not a forty-line flyer that this correspondent demands.

It is very hard to decide what to try to say in the brief space at command.

Most people shudder at the thought of a "cold bath," a cold shower, plunge or douche; yet the effects of a cool ablution are always tonic and grateful, if properly administered. Nor does it require that the subject be of a specially robust nature and constitution. The weakly invalid, sensitive woman or puny child can be made to react so as to receive the full benefit of the measure.

With vigorous persons the momentary cold plunge, shower or ablution is best taken on rising and without any preparation than perhaps a little brisk physical exercise to ensure a vigorous circulation.

In case of weakly individuals it is frequently necessary to precede the cool application with a hot one. Neither procedure should occupy more than five to ten minutes, and the bath towel should be very prompetly and overwhelmingly applied, in case of an invalid, by an assistant. In fact a bath robe made of absorbent Turkish toweling is very desirable in those cases which do not react readily. It is to take the place of towels.

In hot weather, or after actively perspiring a tepid or warm bath on retiring is usually very desirable and always refreshing.

But bathing ought to signify much more than *washing.*

It is popularly and generally assumed, and well-nigh universally taught that the lungs being the respiratory organs they consequently and necessarily do all the breathing.

This is another of the current misconceptions that had its origin in tradition.

The object of respiration is oxidation of the blood and the elimination of volatile detritus, the retention of which within the system gives rise to autotoxemia. Toxic refuse, the result of tissue metamorphosis, steadily accumulates, unless burned up by the oxygen taken into the system or cast out unoxidized through the natural emunctories. But the lungs are by no means the only open door to the oxidizing element. Every well-kept cuticle does its full share of the work of renovation, through its capacity for absorbing oxygen. The skin unquestionably breathes, and under certain circumstances becomes more than a mere auxiliary in the performance of this necessary physiological work.

Whatever, therefore, aids in maintaining a vigorous and normal condition and activity of the skin, to that extent aids respiration and depuration. And this is in addition to its functions as a direct eliminant and detergent, through the action of the perspiratory glands. It transmits oxygen directly to the bloodstream, and, by impressions made upon it, imparts vigor and tone to the trophic centers with which it is so intimately and extensively connected. The human skin, with its multimillions of pores, is an anatomical example of an "open-mesh" garment. A neglected or abused skin can not do its normal share of either elminination or oxidation.

The bath is then, as already stated, by no means limited to merely a cleansing function. By it we control the temperature of the body, and to a large extent the tone and efficiency of the nervous system.

It ought to be clear that bathing, in any comprehensive sense, does not mean merely the periodic wetting of the skin, nor the more or less vigorous scrubbing with soap, necessary as these processes are for purposes of cleanliness. The bath should and generally does involve the exposure of the surface of the body to the vivifying contact of the atmosphere—skin-breathing; with much friction—massage; with the action of heat or cold—temperature; with stimulation of the absorbents and of the cutaneous circulation, and with more or less physical exercise. It ought to be equally clear that all dabbling in water is not necessarily intelligent bathing. Some people keep themselves waterlogged, so to speak, and yet are never healthfully bathed.

Perhaps enough has been said to cause some people who have never stopped to think about it to study the philosophy of the bath for themselves. If so they will not be long in discovering that there is much more in the intelligently conducted or administered bath, Horatio, than has been dreamt of in our oldtime philosophy.

Certain outline rules may be cited:

1. A cold bath should never be taken when the bather is physically exhausted, for the reason that he will not thoroughly react under such condi-

tions. The sudden application of cold water, especially if prolonged for any considerable time, may induce internal congestions with disastrous sequelæ.

It is not, however, dangerous to bathe when heated or actively perspiring unless debility and exhaustion are present at the same time. In fact, an open and active condition of the pores of the skin is very desirable at the time of taking a cold ablution.

2. A cold bath should not be taken when the stomach is loaded with food, whether that be immediately after eating or later on, from retarded digestion. An hour should elapse after even a light meal, and two or three hours after a very hearty one. Whatever suddenly calls the blood to the surface—either a hot or cold bath—interferes with digestive processes active at the time.

Query 149. What school of medicine does the editor of the GAZETTE advocate? It seems to me it would be hard to locate him by reading his various editorials, replies to Queries, etc.
R. E. A., Cal.

Answer. This question calls for a Treatise as large as the New Testament.

The "cures," cults, isms and pathies, faiths and systems of healing are almost nameless and numberless, and yet in allying themselves with this or that exclusive cult a majority of the people are quite apt to ignore some of the cardinal and fundamental conditions on which hang all the laws of hygiene and all the prophecies of therapeutic promise.

A good many people subscribe for a cheap, illustrated "health" journal, buy a copy of somebody's "Domestic Practice of Medicine," stock their cupboards with "standard remedies" and patent placebos of the much advertised class, and then consider themselves competent to take charge of all ordinary cases of sickness, whether real or imaginary, acute or chronic, functional or organic.

Another large class become uncompromising partisans of some one of the "systems" or pseudo-systems of medical practice. There is no doctor like "my doctor," and everything he touches, tastes or recommends is sacred and magical, whether it be medicine, moonshine or miracle. They even pay his bills, and sometimes assume to be astonished at the modesty of his charges. Whatever he tells them is gospel, and they swallow it unquestioned, as they swallow his prescriptions. If he tells them to live on raw beef and red flannel soup, that fruit is dangerous and produces scurvy, scrofula or sarcoma, that distilled water is slow but sure poison, that strawberries induce erysipelas, and tomatoes cause cancer, they order their dietaries accordingly, and conscientiously swear by the results. They become prejudiced partisans of the most unreasoning type. Like all partisans they ignore anything so commonplace as logic, and are blind to facts that stare them in the face at every turn.

This makes it not only easy but inevitable that they should neglect the very essentials of every-day living, putting all their faith in the fetich which dominates them.

The Pathies continue to multiply with each age and generation. Each undoubtedly has its mission, since nothing is the result of chance, guess-work or mistake. The veriest "health" monomaniac is a missionary after his kind. There is no such thing as absolute evil in Nature or the Universe, and Nature is the Universe. We are all more or less inclined to put Nature on the defensive as a pessimist. But Nature resents the libel, and goes on with her side shows and special exhibits, none of which is without its object lesson.

Sensible physicians study physiology, sanitation and hygiene and practise common sense. They have little interest in the "pathies."

Query 150. What kind of exercise or "exercises" are best to restore health and strength to one who has no organic disease but is nervously and muscularly weak with poor circulation and weak digestion?
C. E. H., Syracuse.

Answer. This question, to do it justice, requires a ten-dollar answer. Without going into details we will say that special attention should be given to exercises (of which there are many suited to persons of every degree of strength), which strengthen the muscles of the back. The back is the real foundation of the body and no one, whatever may be the condition of the muscles of the arms and legs, can be either healthy or strong who has a weak back. When the muscles of the back, especially in the thoracic region, are strong enough to carry the spinal column in an erect position, with the shoulders well back, the lungs will work freely and with a little care can be made to oxidize the blood thoroughly which is a necessary condition to good nutrition. If these two points, erect carriage and good breathing capacity, are assured the rest is always easy and sure to follow.

Query 151. How about the old adage:
"After breakfast work and toil;
After dinner sit a while;
After supper run a mile."
J. G. S., Newark, N. J.

Answer. We think truth and poetry are somewhat mixed even if they don't actually clash in this time worn adage. Under certain conditions the advice it contains might be as bad as the poetry. How much truth it contains depends upon so many conditions that it would need considerable modification to render it applicable to individual instances. Whether one should work hard immediately after *any* meal depends upon the amount of his own vitality and the nature of the work in which he is engaged. The morning is, undoubtedly, the best time to do any kind of work, but as a general rule except for the most robust persons who possess a large amount of vitality it is better not to engage in hard work *immediately* after eating. The process of digestion uses a considerable amount of vital energy and few possess such a surplus of this commodity that they can use it to advantage in several directions at the same time.

A person engaged in manual labor could hardly be benefitted by "running a mile" after supper although he can "sit a while" after dinner and be all the better for it.

For one of sedentary habits and indoor occupation to "run a mile" after supper might be all right if he don't run too hard.

We are inclined to believe that this advice was originally framed for the benefit of brain workers or gluttons, and for these classes is as good a general rule as any as far as it relates to exercise.

Query 152. Do you advise those who need exercise to take it before breakfast?

O. M. S., Denver.

Answer. Unhesitatingly, yes. Take all you can get or want. Every thing conspires to render this hour the very best time to take physical exercise. If you have slept well during the night, both body and brain are refreshed and in the very best possible condition to receive the benefits exercise can confer. If you have slept poorly or suffer from indigestion, you need the exercise all the more (which, if possible, should always be taken in the open air), to quiet the nerves, equalize the circulation, oxidize and eliminate undigested residuals, and thus put your physical powers and activities in as good a condition as possible to meet the duties of the coming day.

Don't be afraid to work, either physically or mentally, before breakfast. In fact, if your nutrition is poor, your digestion slow, or if you suffer with headache, the best thing you could do would be to eat no breakfast at all.

The idea, so long and universally prevalent, that exercise should never be taken upon an empty stomach has been proved to be false. A fundamental law of nutrition is that demand should always precede supply. During the night the digestion and assimilation of the food you have eaten during the day is completed, and it is stored in the blood ready for use. It is there to support physical and mental exertion until it has all been used up for this purpose. Ordinarily there is a surplus of food energy in the blood far beyond immediate needs. The system does not really need more food until the supply acquired from the previous day has been largely drawn upon. We all have enough, undoubtedly, to last us until noon.

If you eat breakfast, none of the nourishment it affords is available for physiological use for several hours at least. It takes six to eight hours for the food to pass through the necessary digestive changes to convert it into energy-supporting form.

Therefore, we repeat, exercise freely before breakfast. It is the best way. If you *do* eat breakfast it will give you a heartier relish for it.

P.

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FOOD AND FOOD ADULTERATION.*

By J. B. Weems, Ph.D., Iowa State College, Ames, Ia.

The human body is a very complicated machine. A certain number of years is allotted to this complicated machine to accomplish a definite amount of work. Those interested in doing a man's part in the world's great work endeavor to care for the body in the best possible manner in order that the brain and the heart can do its share in the task.

The body, we know, is constantly undergoing complex changes. The different parts are wasting as the result of the processes of life. To replace these wastes and keep the body in its best physical condition is therefore one of the most essential considerations for right living. The food that we take becomes a more important subject in proportion as we realize its valuable relation to our welfare. One may well say that the index of a man's brain capacity is his knowledge of the materials of value to the body, for brain and heart building.

The body may well be regarded as a manufactory of human effort. The product, good or bad, is the result of the care and interest on the part of the manager, and the reputation in the community is like any other product produced in the material things of commerce.

The food is taken into the mouth, the machinery reduces it to small pieces, and the chemical processes at once begin to act upon the substances. The starch is changed to sugar, and the first stage is completed. The action in the stomach is the second stage and albuminoids are changed to peptones by the chemical processes. The third stage takes place in the intestines where the fats, unchanged carbohydrates and albuminoids are prepared to become part of the body and to be carried to the various muscles by the blood. The question might well be asked, What is a food? and the reply will take one into the domain of many of the modern sciences. A ray of sunshine coming to the leaf of a plant changes the carbon dioxid of the air into starch, sugar, fat, by complicated processes. The sunshine does not create an atom of carbon, oxygen or hydrogen, but it transforms these substances from substances, which would ultimately mean death to us, into useful food. The little atoms, with the aid of the energy from the sunlight, are simply arranged by the plant into food products. Nothing is created or lost in the great changes which are constantly taking place in nature. All that one can get from the food that he uses is the condensed sunshine, and the question is to us, How will you take your sunshine? In the purest possible form or in some other manner? In a free country, where every citizen is responsible for the future every one has the right as a heritage to the best food in the best possible condition, in order that his body, brain, and heart may solve in an intelligent manner the problems of life.

In our rushing American life it is said

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* Read before the Iowa State Retail Grocers' Association at Cedar Rapids, Iowa, April 23, 1903.

that we give our health for wealth and then endeavor to use the wealth to regain the health. Some of our wealthy citizens, so the daily press tells us, are willing to give a million dollars for a healthy stomach, indicating that a man may have capacity to accumulate wealth but not the capacity to care for the body that the Creator gives to him to care for. Many of our rushing, busy citizens are naturally interested in the possible breakfast, dinner, and supper tablets of the future, where the vest pocket will have the pill box in three divisions, one each for breakfast, dinner, and supper tablets respectively. Under these conditions the meal may be taken on the rush, as the man may desire. Unfortunately for those who may desire such a possibility in the future, we know nothing of the body, the brain, and the heart which will result from such a condition. The probability is that nature will exact the penalty of non-existence for those who do not meet her demands. The drug store will not take the place of the grocery store in spite of our ambition to become invalids. We are, therefore, interested in pure foods and the adulteration of foods becomes a practical problem of value to every one.

The subject of food adulteration is a complex one and at the same time it is a subject of great importance to every citizen. Food adulteration is very closely connected and interwoven with the growth of the human race. It is readily realized that before adulteration could commence commerce must be developed among the nations, for without this condition the field would be too limited.

In the early or primitive stages of society there were tricks and substitutions of the bad for the good, but systematic adulteration was not possible. In this early state of society where the family was the unit and where everything used came from the soil and from the flocks, the conditions were naturally not favorable for adulteration or substitution of any nature. As society developed and man began to reach out into various fields where he was not personally known, or exchanges were made through a third or fourth party, the individuality of the producer disappeared and the opportunity came for the use of impure material to be mixed with better kinds. As commerce grew the possibility was more favorable for the meaner qualities of a certain class to be used for personal gain at the expense of the unsuspecting neighbors. Luxuries were naturally the first to be subjected to adulteration by this class of individuals for their private gain and after a time not only the better materials but the food materials used by the common people were the subject of adulteration. This is especially seen in the case of bread, various substances being used for this purpose, not only bad flour, but even iron was used to increase the weight of the loaf of bread. Spices and drugs have always offered a possibility of adulteration from the early ages and including the present time. We readily understand that the adulteration of food has not been restricted to any one country, but has been general. As the class of individuals who adulterated food became general there was the effort on the part of those interested in the welfare of the people and the world at large to protect and prevent this class continuing and carrying out their evil practices. So the battle has been between those possessing an evil desire for the accumulation of wealth and those who are broader and whose interests are extended to their neighbors as well as themselves.

The conditions naturally grew from the beginning, through the various ages until the Twelfth or Thirteenth Centuries, where we notice the various efforts on the part of the community to check the crime of adulteration. The conditions of this time may well be shown by the following extract:

"In the latter part of the Twelfth Century, that which would now be called crime became the favorite amusement of the principal citizens, 'who would sally forth by night, in bands of a hundred or more, for an attack upon the houses of their neighbors. They killed without mercy every man who came in their way, and vied with each other in brutality. . . . False weights, false measures, false pretenses of all kinds were the instruments of commerce most generally in use. No buyer would trust the word of a seller, and there was hardly any class in which a man might not with reason suspect that his neighbor intended to rob or even to murder him.' "

The early efforts to prevent adulteration in England, France and Germany may be of interest. Let us take a glance at the efforts of France. Here we find that it was necessary to have a commissioner in charge of the inspection of food as early as 1292. In 1382 the millers were prohibited from mixing bran, peas, and beans in the grinding of the flour. The bakers were punished for using damaged flour and mixing foreign substances in making bread.

The penalty was severe, as in one case where a baker was convicted of mixing unsuitable material for bread was subjected to a heavy fine, his oven demolished and his place of business closed for six months, a sign indicating the reason for the closing, the crime, and punishment.

Wines, butter, and drugs also were protected by certain regulations.

Germany protected the people by severe punishment for these adulterated food products. Bread, wines and drugs were the products especially provided for by regulations and laws.

England enacted its first law for the protection of foods in general in 1860. Special acts or laws were enacted before this time to protect certain substances like tea, coffee, beer, wine, etc. During the reign of George IV., bread containing alum was unlawful and made from other material than wheat was distinguished by certain signs or letters to indicate the fact to the purchaser. The penalty for not complying with the law was in the nature of fines from $10 to $50. Wines and beer were also protected.

In 1723 it was found necessary to protect the tea supply from adulteration. The penalty was $100 for adulterating this product with foreign leaves or any other substances, besides forfeiting the entire quantity of tea found adulterated. The nature of the substance used may be seen from the following extract of the act passed in 1730-31, in which it is stated that "several ill-disposed persons do frequently dry, fabricate, or even manufacture very great quantities of aloe leaves, liquorice leaves, and the leaves of tea that have been before used, or the leaves of other trees, shrubs, or plants in imitation of tea, and do likewise mix, color, stain, or dye such leaves, and likewise mix tea with terra japonica, sugar, molasses, clay, logwood, and other ingredients, and do sell and vend the same as true and real tea, to the prejudice of the health of His Majesty's subjects, the diminution of the revenue, and to the ruin of the fair trader."

Coffee, we are told, was adulterated soon after it was introduced and it was necessary to prevent the practice by law immediately when it commenced to be used by the people. In the law of 1718 it is found that the use of water, grease, butter and such like materials were used to render the coffee unwholesome greatly to the injury of His Majesty's revenue and the health of his subjects. The penalty for adulteration of coffee was $100, and six years after the fine was increased to $500.

The law of 1718 was replaced in 1802 by another act in which it was stated that "If any burnt, scorched, or roasted peas, beans, or other grains, or vegetable substance or substances be used, prepared, or manufactured for the purpose of being an imitation of, or in any respect to resemble coffee, or cocoa, or to serve as a substitute for coffee or cocoa, or alleged or pretended by the possessor or vender thereof so to be, shall be made or kept for sale, or shall be found in the custody or possession of any dealer or dealers of coffee, or cocoa, or any burnt, scorched or roasted peas, beans, etc., not being coffee or cocoa, shall be called by its preparer or manufacturer, possessor, or vendor thereof, by the name of coffee, or by the name of American cocoa, or English cocoa, or English or British, or any other name of cocoa, the same respectively shall be forfeited, and together with packages containing the same, shall or may be seized by the excise."

Various special laws were enacted to

check the adulteration of food products in England, until about 1860. A few years previous, Dr. Hassall, a man who has done much for pure food in England, began the study of the subject. A physician by education, he made use of his microscope to detect the various food frauds sold to the public, and his investigations gave the foundation for the present laws in England.

After so much of our attention to food adulteration in the past let us consider the problem which confronts us in the present time. We have inherited from the past conditions which favor the adulteration of food products by certain individuals, and our problem is to study these conditions and endeavor to protect the food supply.

Conditions must be made such that products will be sold for what they are, and not one substance of a cheaper nature sold for a better product, under the excuse that it is harmless or just as good. In the effort of bringing about this condition the various states have passed pure food laws and have appointed food and dairy commissioners with authority to supervise the food products of their respective states.

It is not necessary to ask one regarding the resulting conditions, when a state is surrounded by other states having pure food laws. Does it mean that the state of Iowa receives the same quality and the same class of food as her sister states of Wisconsin, Illinois, Missouri, Nebraska or Minnesota, with their food laws? Does it not readily appear to you that many products will be used by the people of Iowa which would not be offered to the citizens of the neighboring states? Should it be necessary to plead with our State Legislature to provide for food inspection, in order that the Iowa citizen may know what he is purchasing at his village store? Let the attempt be made, and then all the possible excuses and reasons are given to prevent such action. We are told that adulterated products are harmless. That such products must be produced by the best firms to meet competition. Then again, that we have already laws, but do not enforce them, and many statements are made to those who have faith in humanity and believe statements because they have this fault. The investment in good food laws with appropriations to enable the commissioner to enforce them is the best education that a state can give its people. The bulletins published by a well organized food commission are educational in many ways. They tell the people what foods are adulterated, and may be made a useful guide to them. The work of the food commissioner is effective, contrary to the general statements which one usually hears that the laws are not enforced and not effective. To illustrate what effective work can be accomplished by a food commission let us glance over the reports of the food commissioner of Ohio. Among the condiments we find that cloves were sold in 1895 consisting of 55 % wheat flour, ground shells, etc. Ginger consisting of rice flour, rice hulls, turmeric and ginger. Mustard containing only 33 % of pure mustard, the other substances being wheat flour and turmeric. Pepper consisting of roasted cocoanut shells, ground rice, turmeric and a small quantity of pepper. If we turn to the analysis of the cream of tartar it is found that the product bearing this name consists of gypsum to a large extent, and containing either calcium phosphate or alum, as for example take one, the analysis which is as follows:

Alum	62.27
Silica	1.00
Lime	.76
Starch	14.39
Cream of tartar	21.58
	100.00

or this:

Cream of tartar	None
Acid calcium phosphate	25.30
Calcium sulphate	24.10
Starch	10.60
Moisture	40.00
	100.00

It does not require an expert to know that the addition of such substances to bread results in an injury to the person using it.

Would any of your acquaintances purchase such substances for any purpose unless it was for an application to land as fertilizer, and not for the purpose of digestion as a food? In the olden times the question was asked, "If a son shall ask bread of any of you that is a father, will he give him a stone?" Such a question has only one answer, yet how shall the father of the present day protect himself and his children when a substance like the following is placed on the market as a flour adulterant?

Analysis of Mineraline (sold as a flour adulterant).

Water	3.13
Silica	65.19
Alumina	30.03
Iron oxide	1.65
	100.00

It is well that such a substance was not a successful product on the market, thanks to the millers who have endeavored to protect their products, but it simply shows to us that there are individuals who do not hesitate to undertake the most contemptible things for personal gain. A volume could be written, showing the attempts which have been made to place on the market products by the fakir or the quack with the object of selling it to the unsuspecting public.

One of the interesting volumes relating to food adulteration is the Report of the Senate Committee to investigate the adulteration of food products. The Committee states as the result of their investigation that the "Committee can not emphasize too strongly the importance of this investigation and proposed legislation. The adulteration of prepared or manufactured foods is extensively practised and in many cases to the great discredit of our manufacturers. It is only fair to say, however, that a large proportion of the American manufacturers who are engaged in adulteraing food products do so in order to meet competition, and the explanation offered by these gentlemen is: 'We would be glad to get out of the business of adulterating. We would like to quit putting this stuff in coffee, etc., and would be willing to brand our syrups for what they really are, but our competitors get a trade advantage and we can not surrender.' "

It is the purpose of this Committee to adopt this uniform rule: To prohibit the sale of deleterious and unhealthy products, and as to those food products which are simply cheapened by adulterants, to compel the marking of these goods for what they are. An examination of the resolution shows that these are the two objects to be sought: To ascertain what food products are dangerous to public health, and second what products are fraudulently sold to the consumer. The committee has adopted the rule above stated, for the reason that it feels that deleterious food products should be prohibited, and the rest thoroughly regulated.

It would be of interest to present to you portions of the evidence which is given in the report but an entire evening would be required for the purpose. Besides the adulteration proper, we have closely connected with the question the use of preservatives in foods. For the purpose of preserving foods the following substances are used: Boric or boracic acid and borates, or so-called "boron preservatives," sulphurous acid or sulphites, fluorids, salicylic acid, benzoic acid or benzoates, and formalin or formaldehyd.

Of these substances the use of fluorids, benzoic acid and the benzoates is very limited. The report of the English Parliamentary Committee on preservatives and coloring matters made the following recommendation, based on the evidence received by the committee:

"(A) That the use of formaldehyd or formalin, or preparations thereof in foods or drinks be absolutely prohibited, and that salicylic acid be not used in a greater proportion than 1 gr. per pint in liquid food and 1 gr. per pound in solid food. Its presence in all cases to be declared.

"(B) That the use of any preservative or coloring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drug Acts.

"(C) That the only preservative which it shall be lawful to use in cream be boric acid or mixtures of boric acid and borax, and in amount not exceeding 0.25 % expressed as boric acid. The amount of such preservatives to be notified by a label upon the vessel.

"(D) That the only preservative permitted to be used in butter and margarine be boric acid or mixture of boric acid and borax, to be used in proportions not exceeding 5 % expressed as boric acid.

"(E) That in the case of all dietetic preparations intended for the use of invalids or infants chemical preservatives of all kinds be prohibited.

"(F) That the use of copper salts in the so-called greening of preserved foods be prohibited.

"(G) That means be provided either by the establishment of a separate rate Court of Reference or by the imposition of such direct obligation on the Local Government Board to exercise supervision over the use of preservatives and coloring matters in foods, and to prepare schedules of such as may be considered inimical to the public health."

The sociological study of the problem is in the domain of criminal psychology. The physician must meet this element in the form of the quack with his "cure all" medicine or his electric belts or batteries. The day of popular delusion has not by any means passed. The food products with the cry "just as good" need investigation by a competent person and not the mere statement of the advertiser in the daily paper. The exaggerated wording of the labels on boxes of cereal products such as one pound of a certain preparation is equal to ten pounds of beef, conveying the idea that the product is a somewhat unusual form of concentrated energy, is of common occurrence, to be found in all the grocery and provision stores. A manufacturer of a preparation who states that it is concentrated gluten, and that it contains little starch may cause a person to purchase a common cereal product when something quite different is desired. The dealer is not able to know the contents of the packages that he sells and is helpless to aid his customers, if he desired to do so. Does the manufacturer know better? I am sure he ought to know. How many firms in printing their labels for food products distinguish between what they can do and what is right to do? Crime has always been in the lead of law and the public never enact a law until experience has rapped its knuckles many times, to call attention to the necessity.

As we study nature and her laws we find if the laws are not obeyed that experience brings to us certain penalties. Medicine has done wonders for the afflicted, but we should prefer to have the body in a perfectly natural condition and not subjected to periods of inactivity and loss due to unnatural causes or sickness. As the attention is given to the importance of good health the dealer in food products will increase in his usefulness to the community.

Why should the dealer in food products restrict himself solely to the commercial side of the question? Would it not be better for him to study the subject in a broad manner and thus obtain a knowledge of the value of the foods in which he deals? This knowledge would be of value in many ways to those who are his customers. The consumers are interested in this question and surely they would appreciate in many ways the advice of one who could advise them in questions relating to food products.

As civilization advances, the groceryman will take his place in the world's work, from the seller of food products he can become by study, a purveyor of the good things which will build men and women into good and useful citizens. The growth in this work will be gradual but the world will welcome it, and has a large place for the man who sells food products and knows his business in every way.

THE ETIOLOGY OF INSANITY.*

By R. C. F. Combes, M.D.

Since the time when insanity was looked upon as the work of Satan and treated accordingly it has been the effort of mankind to enlighten themselves as to the condition, and to-day there are comparatively few who do not believe that it is a disease, which under proper care and treatment can be cured in a certain proportion of cases. Of all of the essentials in the successful management of this disease, as with all others, the most important one is a correct idea as to its cause or causes. Many of our brightest men have devoted the best part of their lives to the study of this subject, and to my mind are partly in error. The physician, as well as the layman, often gives overwork, disappointment in love, loss of friends, etc., as causes of this disease. It is true that such reasons as given could act in a contributory manner, but certainly not as a primary cause. There is something deeper, as the one and primary cause of this disease, and while I will not claim that I have discovered anything new in particular on the subject, I do claim that I shall be able to correct an error which has existed in the minds of some of my professional brothers. I shall take some of the more prominent causes as given by most of our authors and endeavor to show that they are not the true primary cause of the disease.

Heredity probably stands first on the list. I ask, what is this? As generally understood, it is a certain inherited taint or peculiarity of construction or arrangement of brain cells or neurons which are handed down from generation to generation. This theory I can hardly believe, because if it were true we would have in the disease a condition similar to dementia, imbecility, or idiocy, with defective reasoning powers, and the symptoms would continue without remission or intermission, and periods of excitement and agitation would be infrequent or wanting. We must keep in mind that insanity is very common with persons who have the brightest intellects, but by some means the action of the brain cells or neurons is interfered with and abnormal thoughts are substituted for normal ones; and as the very essence of the definition of the word insanity is an alienation from the normal, it is essential that a person must be comparatively normal before he can become insane. If a person inherits a mental defect such as idiocy he was never normal and can therefore never become insane. He can still have other mental defects, but not a true insanity. Next in prominence comes alcohol as a cause of this disease. This seems plausible, but as we have insanity without alcohol we must look further. We have still further an endless number of given causes which neither time nor space will permit me to mention. Of the causes as given above the first seems the most reasonable one, except that it gives a wrong impression.

In the place of saying that heredity is the cause of this disease we should say that such a person has inherited a weakness of, or inefficiency of, certain organs of the body. To my mind this defect is not located in the brain itself, but in some one of the other organs of the body, which, failing to properly perform their functions, thus fail to properly eliminate certain toxic elements from the blood which so act upon the brain cells or neurons as to cause them to retract when they should expand, or *vice versa,* and thus disarrange them so that they fail to properly perform their functions. For this reason I believe that toxic influences should take the position as the very first and most prominent and common cause of this dread disease.

We all know that this human body is a vast laboratory for the manufacture of poisons of all descriptions. We know that it produces urea, indican, acetone, diacetic and oxy-butric acids, as well as many other articles. We know that it produces certain septic poisons, the effects of which are exhibited in certain forms of insanity, *e.g.,* the puerperal state and typhoid fever.

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* Read before the Brooklyn Medical Society and republished from the *Brooklyn Med. Journal.*

Under normal conditions we either do not manufacture or we excrete all of these articles, and they give us no trouble; but we are not all so fortunate as to possess normal bodies and organs, and just here is where our inherited defects give trouble.

The man who has a sluggish liver suffers accordingly, and other organs with defects leave their trails of misery. I do not undertake to say which of the organs is the defective one, which manufactures or fails to eliminate the article that is so disastrous as to produce insanity.

We all know that we produce urea and excrete it, and if the kidneys fail, know the one and only result. I have been led to this belief and have had my opinion strengthened more, probably, from our ability to produce a similar train of symptoms to those of insanity by the administration of certain drugs, *e.g.*, if I wish to produce temporarily a case of acute mania, alcohol will do it, and will continue the symptoms as long as I keep up the stimulus; we have the elation, rapidly changing thoughts, halluncinations of sight and hearing as well as the disturbance of other special senses. It is true, it does not affect all in the same way; it may produce a stuporous condition, as met with in other forms of insanity. Again, by the administration of cannabis indica we can place a man in a veritable heaven and earthly bliss with rapid and changing thoughts and a flow of eloquence far from the normal. Again, large doses of nux vomica produce mental agitation and depression, feelings of impending danger and morbid fears of all kinds.

Bromides taken for a long time and in large doses first produce bromism, and if continued dementia. In other words, I produce a true insanity with this one potent drug. Take now the article cocain and I will again produce a dementia of a slightly different character, but well enough marked to state with a degree of certainty that it is a true dementia. Ergot, if long continued, will so contract the involuntary muscular fibres of the coats of the arteries as to interfere with the nutrition of the brain tissue, and as a result we have a dementia, organic in nature. Absinthe, a preparation of alcohol, produces similar results. Belladonna and chloral will both produce a similar condition if continued for a long time and in large doses. Mercury, lead and many other articles, which I have neither time nor space to mention, will produce similar results. By the administration of the different articles as enumerated above I can not only produce acute, but the chronic forms of insanity, and also exacerbations of the disease, by increasing or decreasing the dose.

It seems to me that as these conditions can be so readily produced by the administration of articles from without, it is but logical to believe that a similar train of symptoms produced without them must be caused by articles of similar potential power, and that they must be produced within the body; and, as we have no means of discontinuing the production or administration, the symptoms are continued.

I think we can account for the periods of excitement, agitation or depression from either the temporary inactivity of the excreting organs or the overactivity of the secreting organs at the time, *e.g.*, during sleep our organs are liable to be more sluggish than during the hours of wakefulness. This perhaps accounts for the extra depression of melancholiacs and the extraordinary number of morning suicides.

The toxic theory, I think, also accounts for the fact that the disease is more liable to occur at the critical periods of life, viz., pubescence, adolescence, child birth, lactation, pregnancy, menopause, old age, etc.

As an explanation of the cause of various forms of insanity, I have to submit that many poisons have a widely different effect upon one person from that of another; so with the particular poison which produces insanity; it affects one person differently from another, *e.g.*, in one person it produces a swelling or retraction of the protoplasmic prolongations of the neurons, as the case might be, and a consequent train of symptoms, and when an extra amount of poisonous stimulus is applied gives rise to periods of excitement or depression. In the prolonged forms of insanity such as paranoia, it would seem to me that such a condition is produced not by an excess of poison, but by its effects upon some particular set of cells.

As to the causes of the forms of insanity where there are coarse brain lesions or pathological conditions such as organic dementia, I believe that the continued action of the poison upon the cerebral tissues other than the brain cells so interferes with the nutrition as to cause them to break down and thus disarrange the cells. I further believe that this same poison or a similar one is the cause of many forms of disease of the nervous system, *e.g.*, sclerotic changes, epilepsy, tabes, etc.; but the poison attacks the cells or neurons in a different location.

In the special form of tissue degeneration in the brain known as general paresis, I believe that this poison (if not the same) is a very close relative to the specific one of syphilis, or is aided in its work by it, and, in case this element affects or attacks certain parts of the brain or cord, we find mental symptoms almost wanting, but the disease claims the victim just the same.

I have seen, within the last two years, two well-marked cases of general paresis ending in death, with very few, if any, mental symptoms; this leads me to believe that the same poison did the work, but that parts of the brain were involved which did not interfere with mental operations.

Abnormal thoughts are common in health under the influence or stimuli of many kinds, but do not remain after the physiological effects have passed away.

Certain persons can take alcohol almost *ad libitum* without producing an abnormal idea; others can go to sea without feeling any unpleasant sensation from the motion of the boat; in other words, one person has a power of toleration which is wanting in another, and so I claim that one person can manufacture enough poison to make another insane, but is able to carry it without effect. In all probability his tolerating powers are greater, or he has the power of eliminating it so that it has no bad effect, while the other suffers accordingly.

As to the production of certain forms of insanity by certain varieties of poisonous elements, it is only necessary for me to say that we are all familiar with the different effects produced by the same drug, if given to different people, and again, the length of time to which one is subjected to the influence of a poison sometimes reverses its effect, *e.g.*, I now have a case on hand which when he first came to my attention, four years ago, was a true case of agitated melancholia, but is now just as decided a case of acute mania; he is elated, talkative, and very decidedly happy. The old adage, "Falling drops wear rocks," can well be applied here. A man can have a veritable fortress, so far as brain and nerve constitution is concerned, but if the drops continue to fall frequently enough and drop on the right place they cannot fail to do the damage, especially if the drops are from a great height and laden with something stronger than water.

Brain texture and neurons are delicate structures, and I wonder how they stand the many attacks which are made upon them.

I think it is the generally accepted opinion of the profession that any act on the part of a person which tends to lower the physical and mental status of a person would contribute to a derangement of the mind.

I have been looking for something more definite than the hundred and one causes as given by authors in general and hope I have found it. One author whom I have consulted gives autointoxication as a cause in thirty per cent. of all cases of insanity, others less, but none more. I place it much higher; I should say that eighty per cent. would be nearer the mark. It is common to hear the laity or physician say that a case of insanity is inherited. We should say that they inherit a weakness or tendency to the disease or, if my theory is correct, inherit a tendency to the manufacture of toxic elements, in the same manner as certain persons inherit a tendency to the formation of calcareous deposits in their joints, or worse still, stones in the kidneys or elsewhere.

We in all probability take into our bodies about the same approximate amount of the sulphate of lime in the water which we drink, but some of us are able to eliminate it, while others are not so fortunate. In opposition to the theory that religious excitement, overwork, business cares and the like are causes of this disease, I have to say that they are only secondary or contributing causes.

If a person goes to church or business and takes a healthy brain, and blood that is not charged with poisonous elements with him, it makes little difference how much the excitement or how great the strain, he would only suffer a fatigue.

If such causes were primary in nature our Wall Street brokers would go insane in a short time.

That some such poison is produced, and is a cause of this disease I am practically certain. I have sometimes thought hereditary syphilis a factor, but to prove such an idea is very difficult.

It is an old story that scrofulous constitutions are due to an inherited or modified syphilis and if that is true we have just as good grounds to claim that it is a cause of insanity and if that theory were true my toxic idea could in that way be supported to a certain extent.

I wish here to say that this paper is one entirely of theory based upon close observation. The idea is thrown out with the hope that brighter minds may take it up, and eventually solve this great problem.

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SOURCES OF SUGAR.

By Dr. C. A. Kern.

Sugar in greater or less quantities is distributed throughout almost the entire vegetable kingdom.

The leaves of the plant are the site of production, which is said to be brought about by the chemical action of sunlight. Some claim the sugar results directly from the action of the chlorophyl in the plant upon the carbonic acid taken from the air, or upon other carbohydrates such as glucose, starch, etc., which have been previously produced and are transported and stored up in other parts of the plants as reserve material.

On the evening of a sunny day, the leaves of a sugar beet contain about two grams of sugar, of which one gram goes to the root. One kilogram of grapevine leaves contains 16 grams of cane sugar, besides 17.5 grams of glucose, etc. Cane sugar and glucose always appear together in plants and the relative proportion varies according to the presence of different organic acids. Therefore the cane sugar in very sour or acid fruits is inverted by these organic acids. The quantities of sugars found in various fruits are as follows:

	Cane Sugar. Per cent.	Glucose. Per cent.
Pineapple	11.33	1.98
Strawberry	6.33	4.98
Apricot	6.04	2.74
Banana, ripe...	5.00	10.00
Apple	1—5.40	7—13.00

Sugar is also found in nuts and almonds, figs, melons, chestnuts, clover leaves, onions, oranges, peanuts, timothy grass, etc., but not in sufficient quantities for manufacture. The scope of this article is only to consider such plants as were and are used in the production of sugar, and the above list is only mentioned to illustrate the large amounts of sugar found in ordinary food products. It is a well known fact that honey was the sweetening medium before sugar was known, and in this instance the sugar came indirectly from the flowers of all plants.

The oldest sweetening material is undoubtedly the so-called palm sugar from India. This is called "jaggery" or "sharkari," and is made from the juice of palms, such as the phœnix sylvestris, cocoanut palms, arenga saccharifera, etc. The sugar palms are planted in rows in dry fertile land and produce from the fifth to the thirtieth year. The gathering of the juice commences in November and ends in February. A triangular slit, one inch deep and six inches long, is made under the lowest branches, and a hollow bamboo cane is fastened to the lowest corner of this slit. On the other end of the bamboo is an earthenware pot. The next morning before sunrise this pot contains a thin, very sweet solution of cane sugar. After drawing the juice for three days, the tree must have a rest. One tree can produce from 35 to 40 pounds of sugar in one year. This juice is now boiled down in earthenware pans, sometimes lined with a little lime, and then it is poured into flat dishes made of palm leaves, in which it is dried in the sun. The total annual production amounts to 50,000 tons.

In the temperate climates of North America the maple is the sugar producing tree. The time of gathering is in the early spring, after the snow has gone and when the leaves are sprouting. This period lasts not over five or six weeks. Holes two or three inches deep are bored into the trunk and one end of a pipe is fitted into these holes, the other end running into a vessel. The juice runs freely for several hours, and then after some hours of rest again runs freely. After cold nights and sunny days the trees give off the greatest quantities, as high as 12 quarts. The juice is evaporated and, after skimming down, is poured into square molds. The manufacture of maple sugar was first carried on by the Indians, especially the Delawares.

Before the arrival of the Spaniards in Mexico and Peru, the natives made sugar juice and also sugar from the corn plant "zea mays." The sweet corn plant was pressed and the juice concentrated and cooled. In Toluca, Mexico, the manufacture is still going on, only the juice is fermented and distilled to "pulque de mahis," a well known beverage. The best sweet corn contains as much as 10 or 12 per cent. of sugar.

Sorghum (sorghum saccharatum) comes from Central Africa and was known to the old Romans as a sugar-producing plant. In China sorghum has been cultivated since olden times. There the juice is used direct or is fermented into a beverage. In the west of our country sorghum was cultivated and a sugar factory was started and kept running for several seasons.

In 1400 and 1500 licorice root was used for the manufacture of sugar.

According to Ibn-al-Awan, the Arabs condensed the juice of the grape in copper kettles, and after clarifying, poured it into flat earthenware dishes and collected the crystallized sugar. This industry was revived through an edict of Napoleon I., in which he offered a premium of 200,000 francs for the first grape sugar factory which produced a certain quantity of sugar. Five hundred pounds of grapes gave either 100 pounds syrup, 70 pounds raw or 35 pounds refined sugar.

St. John's Bread (ceratonia siliqua) has been used in Africa and Arabia as a substitute for sugar. The solid paste or syrup was used for canning fruit.

The juice of the birch tree (betula alba) has been used for the production of sugar in Scandinavia, Scotland and Ireland, and also the so-called Syrian dog cabbage (asclepias gigantea). Sugar melons have also been tried in Russia, California and Hungary. Malt has been proposed as a sugar-producing material. Mostly all these processes are now historical, and there are only two materials which are the sources of our enormous sugar production—namely, cane and beet.

Of these two, cane is the oldest and possibly originated in India on the river Indus. It was first mentioned in a report of Nearchos, admiral of Alexander the Great, in which he stated that the natives produce honey and a white, sweet substance from a reed or cane. From India it was brought to the Euphrates, then to Egypt, Cyprus, North Africa, Spain, Canary Islands, and from there to America.

The sugar beet (beta cicla) grows wild on the shores of the Mediterranean and Caspian seas, in Mesopotamia and East India. From these places the sugar beet spread all over Europe. In 1747 the German chemist Marggraf discovered and produced the first sugar from beets, as is stated in a report made to the Berlin Academy of Science. In 1786 Achard, a scholar of Marggraf, raised sugar beets especially for the manufacture of sugar and built the first beet sugar factory, the first output of which amounted to 1,600 pounds of raw sugar.

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THE NEW METHOD OF TREATING TYPHOID FEVER.

Frederick G. Harris, of Chicago (*Therapeutic Gazette,* March, 1903), reports 128 cases of typhoid treated in Cook County Hospital, Chicago, with acetozone. The cases first admitted seemed to indicate that the epidemic was of a mild form, but later the disease proved to be of a severe type and complications were numerous. The author obtained the most satisfactory results with aqueous solutions of 15 grains to the quart, which the patients were urged to use very freely to quench the thirst, while in addition four to six fluid ounces of the solution was given every four hours as a therapeutic measure. The movements of the bowels were regulated with sodium phosphate or magnesium sulphate.

The temperatures of the patients, on admission, were high, as a rule. In 117 cases under acetozone treatment the average duration of the fever was 18 days.

The number of recoveries was 117, or 91.4 per cent., while 11 patients died, a mortality of 8.59 per cent.; statistics of the cases of typhoid fever in the same hospital (Cook County), not treated with acetozone show a death rate of 13.1 per cent. The author is of the opinion that under the acetozone treatment, in favorable cases, the duration of the disease was materially shortened, that the most disagreeable symptoms were ameliorated. He declares that the characteristic fetor of the stools and the peculiar odor of the wards was greatly diminished; there was less stupor and delirium and less tympanites, and the usual diarrhœa was checked. An average of 138.12 grains of acetozone was used in each case. Finally he reaches the conclusion that when cases can be seen during the first week of the attack and large amounts of acetozone given, assisted by a gentle laxative, the temperature will return to the normal in from 10 to 12 days.

Four cases of typhoid fever in which acetozone was employed with satisfactory results, were reported by Charles Emil Brack, of Baltimore (*Medical Age,* January 25). In each case the treatment consisted in the use of acetozone in solution. The first three patients, adults, received 30 grains of the drug per diem; the fourth, a child of four years, received 8 grains each 24 hours. Prompt recovery occurred in each case.

James Billingslea, of Baltimore (*Atlanta Journal Record of Medicine,* February, 1903), reported 25 cases of typhoid fever treated with acetozone. The diagnoses were confirmed by board of health examinations. The treatment consisted in cleaning the bowels thoroughly by means of calomel. Liquid diet was prescribed and cold or sponge baths were used as occasion required. The special treatment consisted in shaking 15 or 20 grains of acetozone powder with one quart of water, allowing the insoluble residue to subside. The patient was given the clear solution to drink freely, the whole amount of one quart being taken during 24 hours. The writer suggests that one part of the acetozone solution may be mixed with three parts of milk if thought desirable. The action of acetozone will be materially aided by the use of a mild saline laxative.

He found that the feces soon lost their disagreeable odor by this treatment, and cold baths were required to a much less extent than with other treatment. Furthermore, the nurses universally affirmed that they found patients under this treatment easier to care for. No evil effects were noted from the use of acetozone.

A further contribution to this subject appears from the pen of J. J. Driscoll, of Chicago (*The Kansas City Medical Index-Lancet,* January, 1903), who relates his experience in six cases. He found that acetozone reduces the temperature, shortens the duration of the disease materially, while it does not seem to have any ill effects on the heart. The feces are completely deodorized in 36 to 48 hours and tympanites rapidly disappears.

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BARGAIN SALES AS INCITEMENTS TO KLEPTOMANIA.

James G. Kiernan (*Alienist and Neurologist,* November, 1902) in an article on Kleptomania and Collectivism (*sic*) says that Lacassagne (*Journal de médecine de Paris,* October 25, 1896) divides the "bargain" sale thieves into four types: Pure thieves, "collectors," mental instabilities, and the insane. The "collectors" closely approximate to ordinary thieves. Men occur much more frequently among them. They are often in easy circumstances or even rich. They steal without need and almost the same things for the pleasure of possessing them. Bibliomaniacs and other faddists cannot leave a bookshop or other collection without buying. These "collectors" have the same pleasure in stealing desired objects. These people may be feebleminded and insane, but, as a rule, merit the severity of law as much for their own sake as that of society.

The mentally unstable are those in whom the desire to take quickly occurs and who yield without conflict. They are usually rich or in very easy circumstances. Their will weakens rapidly in the seductive surroundings of the "bargain" sale and yields readily to a motive more or less bizarre, but determining and obvious, such as vanity or coquettishness, or even to good sentiments. Others are seized by a vertiginous state caused by the noise and the crowd and become victims of morbid impulse. After several yieldings to temptation they become inveterate thieves, cannot master their impulse; systematically, weekly even, they return to steal, in order to experience the same fright and intense distress in which they have a morbid delight. The desire becomes irresistible. On analyzing it, horrified at themselves, they experience the need of confession to a friend. Despite the most bizarre precautions against their penchant they succumb.

Lacassagne, like Benjamin Franklin (Essay, *Poor Richard's Almanac*), thinks the "bargain" store a serious social danger to the body politic. Women who never have stolen and who would never steal elsewhere find themselves bewitched, excited and take; a true diabolic possession. In the midst of a hurrying crowd in the odorous, overheated wealth-suggesting atmosphere, the woman finds herself with clothing aptly adapted to hide stolen objects. At certain hours there are too few employees to serve the enormous crowd which waits its turn, touching and taking goods whose splendor and variety bewilder. Certainty of detection would undoubtedly serve as a deterrent in many cases; as Lacassagne remarks, it would be better, especially for the mentally unstable women, to catch the thief rather than merely to prevent theft.

The "collector" type is as a rule perfectly responsible. "Book snatching" is a besetting vice of bibliomaniacs, just as coin and stamp purloining attacks numismatists and philatelists.

While kleptomania in the United States is legally a defense for crime, it remains to be determined in each case whether kleptomania exists, and whether it merely extenuates or completely absolves. Where states predisposing to mental instability exist, the burden of proof of sanity is on the State. In the "collectors" the burden would be on the accused. Stealing of relatively worthless articles is by itself no evidence of insanity. Parisians think it "smart" to steal sugar and matches from restaurants. Not a few sane Americans think it is equally "smart" to steal rides on railroads.

AGE AND ITS POSSIBILITIES.

We speak of this as the age of young men. It is the custom in the English army to get rid of the older officers and promote the young men rapidly, because it is supposed that they are more efficient. It not infrequently happens in medical schools that the younger man is given preference over the older one whose work has entitled him to the position, simply because the younger man is supposed to be worth more to the institution, on account of the greater amount of original work that he is likely to perform. Indeed, it has been said that unless a man makes his mark before thirty-five years of age, he is unlikely to achieve much afterward. Age, however, is merely a relative term. It has been said often and is often forgotten, that one man is young at eighty, while another is old at thirty. There are so many illustrations that can be cited of green old men that it seems useless to lay stress upon this point. And yet, when we think of Kolliker and the enormous amount of original work that has appeared in his Gewebelehre, we must pause before vaunting too enthusiastically the advantages of youth. Another remarkable illustration has recently been furnished by von Kupffer: O. Hertwig requested him to write the article upon the development of the central nervous system for his new Handbuch der Entwicklungsgeschichte des Zentralnervensystems. Von Kupffer undertook it, provided he was permitted to write the article as a result of his own original and independent observations. He was then 70 years old. In order the better to carry on his work, he resigned his teaching position at the University, spent 5 hours every day in the Anatomical Institute, and then devoted all his afternoons and evenings until midnight to his library and desk. He took no summer holidays, and was unremitting in his efforts. In two years the work was completed. It contained nothing old, nothing previously used, and discussed authoritatively all the questions then of the greatest interest to science. There are few young men who could have accomplished nearly as much; few young men would have had the moral courage to neglect all other things for the one piece of work that they had undertaken. Let us not, therefore, speak too slightingly of the abilities of many years.—*Phila. Med. Journal.*

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AN INDIAN GOOD BEFORE DEAD.

There is no denying the alligator on the banks of the Ocklawaha in Mr. F. R. Swift's little book of hunting reminiscences, "Florida Fancies" (G. P. Putnam's Sons). On one occasion he describes an adventure with one of these creatures that has more to recommend it as a campfire story than an experience to share in. He had taken an Indian boy along, whom they dubbed "Thirty Cents." After lying in wait in the canoe a good part of the morning—suffering one of the belles of the alligator principality, who came to take an inquisitive survey, to go unmolestedly to sleep on a neighboring tussock, and becoming decidedly weary of their own patience—they were finally rewarded by the characteristic line of bubbles a few yards away. Mr. Swift missed his aim with the shotgun, and then the trouble began. The alligator dived and charged, leaped and lashed, and manifested a disposition to put an end to his assailants without seeming to go about it in any rationally direct fashion. It became apparent that the creature had been blinded. When he stayed under for a good quarter of an hour, and produced a twenty foot circle of vigorous bubbles on the surface, the young Indian paddled to the spot and prodded the source of this commotion. Naturally in less time than it takes to wink, the canoe was smashed and the hunters were sprawling in the water. It was then a question of the alligator's preference, the shore being five hundred yards distant. Mr. Swift saved himself by stopping his noisy swimming, which the blinded antagonist was following, and floated quietly out of line on his back. But the Indian accepted the conditions of the race. He was buried next day, when the capture of the alligator made it possible. Sam, the colored servant, cleaned the animal's skeleton and propped it up with a sapling as a monument at the head of the grave, attaching a placard with this inscription:

> Here's Thirty Cents.
> He Was a Good Indian.
> This is the alligator's bones that killed him.

The photographs and the marginal drawings by Albert E. Smith, which illustrate this lightly done record of a midwinter holiday, carry out the open air quality of the text.

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ANOTHER USE FOR THE X-RAYS.

IN Japan the X-rays are now turned upon employees of the government who are suspected of having swallowed gold coins. A number of X-ray machines have been ordered in Philadelphia for this purpose.—*The Medical Examiner.*

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MRS SMITH: I'm afraid I shall have to stop giving Robby that tonic the doctor left him.

Mr. Smith: Why, isn't he any better?

Mrs. Smith: Oh, yes. But he slid down the banisters six times this morning, broke the hall lamp, two vases, a jug, and a looking-glass, and I don't feel as if I could stand much more.—*Boston Traveller.*

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HOW MR. ROOSEVELT LIVES AND WORKS.

THE young men of the country will be entitled some time to know even more than they have as yet been told about the way in which President Roosevelt accomplishes so much and yet keeps in prime order. His physical constitution was, of course, built up, as everybody knows, years ago by systematic exercise and much outdoor life. His mental vigor would seem to have been acquired by a somewhat analogous method. The President does not flinch from the task in hand. He has schooled himself to do the day's work as it comes. He has acquired to a marvellous degree the power of concentration and the habit of decisiveness. He arranges his day well, is very abstemious in eating and drinking, does not allow himself to be cheated out of a fair amount of exercise, does not rely in the least upon stimulants or tobacco, and, perhaps above all, never tries to surpass himself or to expend his reserve strength in the achievement of some thing exceptional. With matters of colossal importance to attend to, he simply does his best as he goes along, deals with every problem that arises in a simple, direct, and natural way, and thus finds the day sufficient unto itself. He borrows no trouble, sleeps soundly, and meets the morrow refreshed and with full courage.—*American Monthly Review of Reviews.*

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FOR COAL GAS POISONING.

HYDROGEN peroxid is a most useful remedy in carbonic acid poisoning from the inhalation of coal gas, says *Merck's Archives.* It is administered by the mouth and per rectum. By the mouth it is given in doses of one ounce diluted with an equal volume of water. By the rectum it is given full strength in five ounce doses.—*Med. Standard.*

A SIGN OF HEART FAILURE.

Dr. Henry Jackson calls attention to one of the signs of cardiac failure which is of great import, though it meets but little notice in the articles upon this condition—namely, a discrepancy between the rate of the arterial pulse and the rate of the heart-beats. He has observed in many instances that in cases of extreme cardiac weakness the pulse was very slow, intermittent and irregular, while the heart was rapid, and refers not to cases in which it is extremely difficult to count the pulse, as is always the case when the pulse is irregular, but to cases in which the most accurate taking of the pulse by trained individuals does not show a rapid pulse-rate, yet examination of the heart shows that its action is extremely rapid.—*Medical Times.*

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THINKING ONE'S SELF OLD.

People grow old by thinking themselves old. When they reach the age of forty, fifty, or sixty they imagine they look like others of the same age, and that they soon will be useless, unfit for work, and unable to perform their duties. As surely as they think this it will come true, for thought is creative. The time will come when children will not be allowed to celebrate their birthdays; when they will know that by thinking themselves young they will remain young, and that they will cease to grow old when they cease to believe in old age. The body is built up of beliefs, and our convictions are stamped upon every fibre of our beings. What we believe, what we think, that we are; so people who remain young in spirit never grow old.—*Vegetarian.*

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AN EMERGENCY SUBSTITUTE FOR GLASSES.

The optical properties of the pinhole are well-known in these days of amateur photography. Probably, however, the following device, based thereupon is not generally known, though it is easy to conceive of circumstances in which it might serve a very useful purpose. *The Medical Times* for May reminds us that by making a hole through a piece of paper or postal card with a pin, moving the pin a few times round the hole to give it a smooth edge, holding the pin-hole close to the eye, and looking at printed or other matter held at the normal reading distance, there is perfect definition, and any one who requires glasses to read can with this device read anything. When a pin hole is held to both eyes at the same time, there is a great improvement over one, with perfect binocular effect. The field of view is much smaller than that seen when glasses are used. There is less light and no magnification. The importance and utility of this simple device in many circumstances are obvious.

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Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE HEALTHFUL INFLUENCE OF A CHEERFUL SPIRIT.*

By W. M. Taylor,

Brooklyn, New York.

One of the best means to gain health, and in fact many other good things in this world, is through the cultivation of a happy or cheerful spirit.

That such a faculty lightens the heart, begets good digestion, brightens the eye, tempers pleasure, and even turns the tears of sorrow into those of joy, is admitted by all.

But do we fully realize what a great aid it is in preserving and maintaining, not only the healthful and harmonious action of every organ and function of our material system, but through the influence it exerts over mind and heart, it becomes a most helpful factor in our social, our home, and our business life! A cheerful man will do more business, and do it better, than a melancholy one; besides diffusing happiness everywhere he goes.

The cheerful person is easy in thoughts, and master of his powers. He relishes whatever is good; partakes of whatever pleasures nature has provided; and does not feel the full weight of the evils which befall him.

The cheerful spirit banishes all anxious care and discontent; soothes and composes the passions, and in times of misfortune, is meat and drink, bringing strength and encouragement.

It will help us to bear poverty and affliction, convert ignorance into an amiable simplicity, and render deformity itself agreeable. It will lighten sickness, and as the bright sunshine supplies the earth with vitality, so a bright and happy spirit, invites health to the body.

It is strength to the arm, digestion to the stomach, courage to the heart, and balm to the wearied brain.

It relaxes the tension of the muscles, bringing elasticity and freedom of action.

It quiets the over-wrought nerves, bringing rest and peace.

It accelerates and equalizes the circulation, bringing warmth of body in winter, and cooling refreshment in the heat of summer.

It stimulates the organs and function of elimination, thereby removing the excess of waste, which, in these days of "civilized-over-indulgence," is one of the chief causes of ill-health.

It is a well known fact that a person with a morose or irritable spirit, breathes with difficulty, and the respirations are short; whereas a person with a contented spirit, not only breathes twice as much air with greater ease and comfort; but there is created by the same spirit, functional activities, that, added to the oxygen, brings new life to every part of the living organism. Indeed, the part this "spirit of cheer" plays in the various functions, is not easily estimated, nor by any, denied. But what is this great factor of good, and whence comes it? Is it lightheartedness? No, for that is often illogical and frivolous. Is it pleasure? No, for that is the lot of those who are fortunately situated, and this is not the case with all of us, at all times. Is it the fruit of health? Hardly, although health is a contributing agent.

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* Read at the July meeting of the Health Culture Club of New York.

Some are erroneously supposed to possess a spirit of cheerfulness because they try to look pleasant, to smile, to be jolly or flippant. Others are accounted cheerful who are full of mirth; but experience shows that "comical geniuses" have their reverses, and the funny man of to-day is the despondent man of to-morrow.

No, true cheerfulness is not assumed for a moment, but is a quality of mind and heart that takes earnest effort to acquire and maintain, but can be cultivated and formed into a lasting habit that will stand the storms of every adversity.

It comes always and *surely* to those who seek it, and as Alice Cary so beautifully expresses it in a little verse which says:

Look for goodness, look for gladness,
  You will meet them all the while;
If you bring a smiling visage
  To the glass, you meet a smile.

Let us then under all circumstances woo this serene "spirit of cheerfulness," for in it we will find much of the *sweetness* of life. Let us keep our minds open and receptive to the finer and life-giving vibrations of "good cheer," and as surely as we do, they will dissolve and dissipate every form of gloom, acting and reacting upon us until they penetrate every nook and corner of our being, and cheerfulness within will bring cheerfulness without.

But by what means can we cultivate this fruitful quality of cheer? By the greatest and most universally used—though possibly the least understood force for good or ill—the power of thought. *For thoughts are but seeds that, planted in the garden of the mind and nurtured by the will, become a force, a power, a part of our living self.*

Let us take heed, then, to the manner of our sowing; weeding out, ere they take too great a root, the thoughts of sickness, of worry, of evil or discontent.

"For it's whatsoever a man *soweth,* that shall he also reap."

We have a reasoning *intelligence* that *can choose;* a *will* that can *accept* or *reject* the seeds that we plant in our garden.

Shall we not, then, rather sow the vigorous, positive, living thoughts of health, of encouragement and cheer?

For the fruit of these have seed within themselves which, increasing, will add strength to our days and be a source of inspiration and help to those both far and near.

I trust that every home represented here has in it the sunshine of a "cheerful spirit," for it is not only one of the most potent factors for health, but, we must all admit, "a thing of beauty and a joy forever."

122 Fort Greene Place.

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JUSTUS VON LIEBIG.

Liebig was skilful in correcting popular delusions on scientific subjects. A notable example of this may be found in the overthrow of the once much discussed theory of "spontaneous combustion," a comparatively modern error, dating it seems only from the year 1725, but which persisted long after Lavoisier had explained the real nature of fire; which was from time to time put forward with success in the defence of persons on trial for murder, and received its last support from Charles Dickens. His success in this direction throws a pleasant light on the progress of civilization. One wonders what would have been the fate of Liebig had he opposed himself to such an error in the sixteenth century, when Kepler could only save his mother from going to the stake for witchcraft by satisfying her judges that she possessed none of the signs essential to a witch. In those days Kepler did not dare to say that there were no such things as witches.—W. A. Shenstone, in *The Cornhill.*

FRUIT REMEDIES.

A recent investigation has shown that quite a number of functional diseases as well as organic changes are not only due to but are greatly aggravated by gastro-intestinal disorders. Also that many of these troubles are the direct results of auto-intoxication. This seems to be very marked in persons who use large quantities of meat and who are reckless in their diet, and also in persons who use spirits for their supposed tonic and food effects. Rheumatism and gout are very often traceable to the toxic states caused by ferments in the stomach and intestines. In most of these gastro-intestinal troubles there is diminished alkalinity of the blood. For a long time the change of diet to fruit has produced remarkable effects in most of these cases. A noted author has reported a number of cases of invalid children who suffered from nightmare and excessive nervousness who were successfully treated by a fruit diet. Bread and cereals with ripe fruits constituted the entire remedies. Another author has mentioned some remarkable cases of elderly persons suffering from obscure troubles cured by the same means. In diabetics a recent author observes that fruit sugar can be taken to the amount of three ounces daily without increasing the output of sugar, whereas starchy food or sugar in the form of glucose always increases the amount of sugar eliminated. The ordinary diabetic prescriptions of meats, eggs and milk with the exclusion of all vegetables containing starch is found to be greatly supplemented by large quantities of fruits. It is found that they give variety to the diet and furnish the much needed carbonaceous elements without increasing the sugar. They also diminish the gastro-intestinal decomposition and hence take work from the kidneys, giving them better opportunity to store up sugar. In Bright's disease the albumen is thrown off while some of the poisons are retained. Medically, the effort is to diminish the loss of albumen and get rid of the accumulated matters which the crippled kidneys are unable to take care of. From a fruit diet the ptomains are diminished and more acids and water are directed toward flushing the kidneys. One author recommends to give the patient all the water he wants together with all sorts of fruits, which increases the alkalinity of the blood, favoring oxidation of the sugar. In a noted textbook the following is the general treatment for diabetes: Give nitrogenous foods in the form of gluten, gruel, mush, or biscuits with nut foods. If the patient is feeble, keep him in bed. If he is vigorous, have him exercise freely every day. There is evidently a great deal to be learned in the effects of fruit diet both in health and disease, and physicians should feel that the subject is worthy of a great deal of attention.

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TRUE FOOD VALUES.

Not long since we pointed out the fact that many members of the profession are entirely too ready to accept the "say-so" of the purveyor of medicines and food-stuffs as to their exact therapeutic value. Not infrequently the physician is called upon by an individual, who lauds to the skies a new medicinal preparation, but is soon proved to know little about it if he is cross-questioned intelligently. We believe that this is particularly apt to be the case in regard to foods for the sick. There are a very large number of these so-called nutritious substances on the market, and some of them undoubtedly possess great value. But on the other hand, it is by no means an uncommon thing to find a patient endeavoring, under the advice of his physician, to subsist on some one of these liquid preparations without the ingestion of a sufficient amount of real food to support the needs of the system.

An article which has appeared in the *Boston Medical and Surgical Journal* of March 12 by Dr. Harrington illustrates very clearly the exact value of some of these preparations. He shows that most of them contain a far larger quantity of alcohol than of nutritive material. Thus, the quantity of alcohol by volume ranged from about 14 to 23 per cent., as compared to from 6 to 19 per cent. of solids, and therefore the administration of full doses of these preparations results in the free use of alcohol and in the administration of small quantities of actual nourishment; or in other words, in stimulants rather than in nutrition. Our object in calling attention to this investigation of Dr. Harrington's is in no way to throw discredit or doubt upon the value of these preparations in medicine. The practical points to be drawn from this research seem to us to consist in the fact already mentioned, that these various liquid nutritive products do not contain, on the one hand, sufficient nourishment to really support the patient, and on the other hand do contain so much alcohol that they will be strongly contraindicated in those cases in which alcohol is considered undesirable.

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FRUITS AND FRUIT JUICES.

A BULLETIN of analyses of commercial fruit juices, jams and jellies has been recently issued by the U. S. Department of Agriculture. While the analyses are numerous and exact, the results do not embody anything new or startling. It has long been known that apple pulp and glucose syrup are largely employed as diluents and substitutes for the expensive fruits, and that coal-tar colors and preservatives are apt to be present. The bulletin does not enter upon the question of wholesomeness of products, except some moderate allusions to the possibility of coal-tar colors containing metallic impurities. It is, indeed, a question whether these fruit preparations, even when absolutely pure, are wholesome. They are usually eaten on account of their acceptable flavor or taste, and there is great liability to excessive consumption of them, particularly among children. Strictly speaking, they have food value, but this can only be as carbohydrates, and they are much more expensive than the common starch and sugar foods. The danger from the coloring matters has been much overrated. It is true that some coal-tar colors contain poisonous metals in appreciable amounts, but colors free from such ingredients are now readily obtainable. The amount of color is so small that its physiological action can hardly be regarded. For instance, one color much used is so powerful that one grain will color 4 pounds of candy. The preservative most used in jams, jellies and marmalades is in this country sodium benzoate. Salicylic acid, is however, still in use, though it is being discarded. Addition of gelatine, starch and agar-agar has been suspected, but the analyses do not show the use of these, and manufacturers state that, in spite of the fact that these bodies produce strong jellies, they are not suitable for commercial use. Tin is almost always present in goods put up in tin cans, and the quantity in canned fruits is larger than in canned meats, because the acid of the fruit and the contact of the syrup give facilities for solution of the metal. Carelessness in the use of zinc chloride as a soldering fluid leads to a contamination with zinc. On the whole, while the bulletin shows a good deal of substitution and imitation, it does not show serious sanitary peril.—*Phila. Med. Journal.*

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THE CATHODE RAY LIKE A MAUSER BULLET.

THE nature of the Becquerel rays themselves is a matter of deep interest to physicists, and a brief description is necessary. Their most remarkable property is that they are deviated out of the straight lines in which they travel, by a magnet, and this behavior is like that of the cathode ray which Sir William Crookes obtained from his vacuum tubes nearly thirty years ago. That is, the rays consist, according to the now accepted explanation, of swarms of minute particles of matter travelling in straight lines from their source with a velocity approaching that of light, and each particle carries with it a charge of electricity. From their minuteness and speed they are able to penetrate metals and matter, in general, which is opaque to light. A Mauser bullet piercing a thickset hedge is a fair analogy to a cathode ray penetrating a piece of metal. No one who has seen these cathode rays driving a windmill inside a vacuum tube, or heating a thick piece of platinum to whiteness by their impact, can fail to be impressed by the energy they possess. But whereas the Crookes tube works under the influence of electrical forces of great intensity and power, in the radio elements the same phenomena are produced by mere inanimate matter, which works by itself and goes on working, sublimely indifferent to known forces, apparently for ever and ever. What is the inexhaustible source of these manifestations of energy, which seem to disobey the universal law of Nature? The moon is a dead world because it has long radiated its energy into space. But the internal fires which nourish a bit of radium, and make it glow with its own light, must have been at work when the earth itself was a sun, and, for all we know, will continue after many bodies, now suns, have grown cold.—Frederick Soddy, in *The Contemporary Review.*

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MICROBES.

The discovery of the microbe has added a new terror to existence; but, after all, it is to a large extent imaginary, and is heavily discounted by a knowledge of the manifold defences of the organism against them. Dr. Charrin, a professor of the Faculty of Medicine, Paris, has recently given an interesting account of these. Even in the outer world, light, heat, cold, dryness, and other agents tend to enfeeble or destroy the microbes, and when they try to enter the organism, they encounter a series of mechanical, chemical and other obstacles. If, however, they overcome these, and penetrate the tissues, they have to struggle against the germicidal properties of the blood, which in a healthy subject are very powerful.

Apart from the outer protection of the saliva, and the secretions of the stomach, etc., the blood contains defences drawn from various organs of the body; the white globules weaken or kill them, the movement and pressure, oxygen and carbonic acid, tend to complete the work of destruction. In general, the microbes only flourish in the system when the latter is defective or enfeebled in some way, a fact which emphasizes the wisdom of keeping up the strength and tone of the body.

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THE SCIENCE OF OSCULATION.

One of the most amusing of modern discussions is that as to the origin of the kiss, which discussion may have had some connection with the lively interest attaching to Lieutenant Hobson's osculatory exploits. Thus Professor Lombroso, seriously discussing "The Origin of the Kiss," claims that it was at first a maternal act, arising, in fact, from the pressure of the mother's lip to the child's to give it water. "From this act," says he, "the first kiss was probably evolved—a kiss not amorous, therefore, but maternal. Children kiss only when they have been taught to do so, and not before they have attained the age of six months." Professor Lombroso comes to the rescue of Lieutenant Hobson on the ground that "the imperialistico-military ardor kindled in the United States by the infamies of Spain, so contrary to American feeling and tradition," was a subsidiary cause of the manifestation, which, he goes on to say, "loses much of its indelicacy when we remember that the kiss may bear many interpretations besides that of love. It has been said that the kiss is the symbol of love and respect, friendship and gratitude; that it is a token of peace and charity; that it has somewhat the nature of a pledge. We see, therefore, that, above and beyond the maternal and the amorous, the kiss is a symbol of respect and veneration, and, we may add, of fellowship. St. Paul exhorted his followers to kiss in token of fellowship—'Greet ye one another with an holy kiss.'" The professor relates that a beautiful Italian lady was so enamored of Zola's famous Dreyfus letter, "J'accuse," that she said, in a large assembly, "If he were here I would kiss him!"—"and I have no doubt," adds the writer, "that the other ladies present would have followed her example." It seems to us that the kiss is somewhat cheapened by written discussion, being one of those half impalpable, though not exactly intangible things whose aroma vanishes in the light of scientific dissection and analysis. To the average youth the approach of lip to lip is rather a sentiment than a scientific abstraction.

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DIAGNOSIS OF LOCOMOTOR ATAXIA.

DR. J. BROWN states that locomotor ataxia is one of the most common of the chronic nerve diseases. It is often unrecognized for years, although the most easily recognized of all the cerebro-spinal nerve lesions. To avoid overlooking this disease, examine every patient with symptoms of whatever nature for the knee-jerk and the pupil reaction; if both exist, the patient has no tabes. Examine further for evidence of tabes in any patient showing the following symptoms. Difficulty in walking, especially in the dark; gradual failure of vision, or a transient squint; lancinating pains, or neuralgic pains in legs, sciatica, chronic rheumatism. Sudden attacks of gastric pains, or causeless vomiting, or "bilious attacks" frequently repeated. Difficult or urgent urination (bladder disease), incontinence of urine or feces, numbness of anal region. A sluggish ulcer on foot or leg. Spontaneous fracture of a long bone or a fracture from some trivial cause. Numbness of one or both little fingers or of ulnar sides of forearm.

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CHEMICAL COMPOSITION OF THE BODY.

A FRENCH chemist, of a particularly inquiring turn, has determined by experiment that the body of an average man, of about eighty kilos, has all the chemical elements represented in the yolk and white of twelve hundred ordinary-sized eggs of the common hen. Properly reduced, such a body would furnish 96 cubic meters of gas and sufficient hydrogen to fill a balloon with an ascensional force of 70 kilos. Normally, the human body contains iron sufficient to make seven large nails, fat for thirteen candles, carbon for sixty-five gross of pencils, phosphorus to tip eight hundred and twenty thousand matches, together with the constituents of twenty teaspoonfuls of salt, fifty-nine lumps of sugar, and forty-two liters of water.—*The Coca Leaf.*

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THE AGE OF HURRY.

"WHO are the three hardest worked men in the world to-day," I asked a well-known newspaper correspondent who has personally interviewed every public man of any consequence, from the late Cecil Rhodes to Big Bill Devery. Without the slightest hesitation he replied: "Well, in my opinion, they are Pope Leo, of Rome, Joseph Chamberlain, of England, and J. Pierpont Morgan, of New York." Mr. Morgan is frequently cited as being the most strenuous American extant. He may be, or he may not be. But this story is told of him: A business associate intimately connected with Mr. Morgan in many huge commercial transactions, had the temerity to call up the world's greatest financier on his private wire, just as he was preparing to retire for a comfortable and recuperative night's rest. The matter in hand was said to be an international deal of great magnitude, involving several hundred million dollars. Yet this is the reply Mr. Morgan is said to have given him. "How dare you ring me up at my residence? Do you think I take my business to bed with me. You may see me at my office any time after ten o'clock in the morning." The reply was characteristic of the man. It contains the secret of his hale and robust manhood after over half a century of business activity. He confines his strenuous business methods to his business office. He does not take his business to bed with him.

As to Joseph Chamberlain he is said to be the most methodical of Englishmen, and the English are a slow-going methodical people, while the Pontiff was also of the old school, and not a victim of the hurry habit, although he was generally conceded to be the busiest man in the world in his day. Yet it is said of him that he was never known to be in a hurry.

And so, let us take the lesson taught by the daily life of these men, to heart. Let us be strenuous by all means, but let us temper that strenuousness with a little calm deliberation. There is a proper time and place for everything, including strenuousness. If we must hurry, let us make haste slowly, with eight hours for work, eight hours for recreation, and eight hours for rest and recuperation. *"As we journey through life, let us live by the way."—Vim.*

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FAMILIAR FACTS.

To find the circumference of a circle, multiply diameter by 3.1416.

To find the diameter of a circle, multiply circumference by .31831.

To find the area of a circle, multiply square of diameter by .7854.

To find the area of a triangle, multiply the base by one-half the perpendicular height.

To find the surface of a ball, multiply the square of the diameter by 3.1416.

To find the solidity of a sphere, multiply the diameter by .5236.

Doubling the diameter of a pipe increases its capacity four times.

A gallon of water (U. S. standard) weighs 8 pounds 1-3 ounce, and contains 231 cubic inches.

A cubic foot of water contains 7½ gallons, 1,728 cubic inches, and weighs 62½ pounds.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434.

Steam rising from water at its boiling point (212 degrees) has a pressure equal to the atmosphere (14.7 pounds to the square inch).

A standard horse power equals the evaporation of 30 pounds of water per hour from a feed water temperature of 100 degrees F. into steam at 70 pounds gauge pressure. To find capacity of tanks, any size, give dimensions of a cylinder in inches, then, to find its capacity in U. S. gallons, square the diameter, multiply by the length and by .0034.

To ascertain heating surface in tubular boilers, multiply two-thirds the circumference of boiler by length of boiler in inches and add to it the area of all the tubes.

One-sixth of tensile strength of plate multiplied by thickness of plate and divided by one-half the diameter of boiler gives safe working pressure for tubular boilers. For marine boilers add 20 per cent. for drilled holes.

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THE Khedive of Egypt is fond of horses, and has the most costly set of harness in the world. It was made in England, cost £2,000, and is for four horses.

THE PERUNA HABIT AND OTHER FORMS OF ALCOHOLISM.

The Peruna habit and other forms of alcoholism should be looked into by its religious and newspaper sponsors. We are indebted to Mrs. Martha M. Allen, the energetic worker of the W. C. T. U., for having asked the Massachusetts State Board of Health to analyze Peruna. In an advertisement of this nostrum a statement was made that "Peruna has among its friends many of the leading temperance workers in this country who give it unstinted praise, and do not hesitate to endorse it by the use of the most extravagant language." The chemist found it contained 23.46 per cent. by weight of alcohol. We know of one patient, a young lady, who has been taking large doses of this compound, and who has found it so exhilarating that she has made herself a sort of walking advertisement for the enterprising manufacturers. She would have been indignant if asked to take a "cocktail," or a drink of whiskey, containing less alcohol than her prized and secret tipple. The Massachusetts board found 15.33 per cent. of alcohol in Vinol; 16.77 per cent. in Pinkham's Vegetable Compound; 5.87 per cent. in Swamp Root. In Orangeine there were found acetanilid, caffein, and sodium bicarbonate. Concerning acetanilid, Dr. Abbott, secretary of the board, says that it should be taken with much caution lest its frequent use degenerate into a confirmed habit. The proprietors of White Ribbon Remedy were not going to be trapped in one way—there was no alcohol in the drug, but only milk sugar and ammonium chlorid. It is "as likely," adds Mrs. Allen, "to cure drunkenness as would a blast of east wind." We have entire sympathy with the efforts of the W. C. T. U. to expose the meanest hypocrisy of the worst of liquor sellers, the patent medicine manufacturers.—*American Medicine.*

ANOTHER PERUNA TIP.

One of the worst quack nostrums at present debauching and inebriating the American public, especially the feminine part of it, is Peruna. Many dainty and prim young ladies, who would feel insulted if asked to take a drink of whiskey, consume large quantities of that humbug catarrh nostrum, which has been found on analysis to contain over 25 per cent. of alcohol (by volume), thus gradually becoming slaves of the alcohol habit. When will the sale of those vile concoctions, that depend for continued popularity on their alcohol and morphine contents, be prohibited in this country? The time is nearer than my readers may believe. The manufacturers are powerful and have a tremendous pull and influence, but the intelligent conscience of this country is awakening, and once fully awake, it will, in characteristic American fashion, take the bull by the horns and make short work of the entire patent medicine swindle. One thing seems very near at hand—a law demanding the statement of the composition of the patent nostrums, especially when the latter contain poisonous ingredients. Let us keep at it, and our work will be crowned with success.—*Med.-Pharm. Critic and Guide.*

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AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

Thirteenth Annual Convention.

To be Held at Atlantic City, N. J., Sept. 22, 23 *and* 24, 1903.

We have received from Dr. Skinner, the secretary, the announcement and program of the forthcoming meeting of the above Association.

The program and list of papers to be presented is exceedingly attractive, and the meeting promises to be more interesting and important than any of its predecessors. It is as follows:

FIRST DAY, TUESDAY, SEPTEMBER 22, 1903.

Morning Session.

Registration of Members.

9 *o'Clock.—Executive Session;* 10 *o'Clock. —Scientific Session.*

Reading of minutes of previous meeting; Addresses of welcome and responses; Reception of Honorary Fellows and Guests; Communications; Address of President; Report of Committee on Arrangements; Resolutions.

REPORTS OF STANDING COMMITTEES.

On Induction Coils and Alternators, by Margaret Abigail Cleaves, Chairman.

On Electric Light Apparatus for Diagnosis and Therapy, and the Roentgen Ray, by William Scheppegrell, Chairman.

On Electrodes, by R. G. Brown, Chairman.

On Meters, by Robert Reyburn, Chairman.

On Cataphoresis, by Fred Harris Morse, Chairman.

On Static Machines and Condensers, by William Benham Snow, Chairman.

On Constant Current Generators and Controllers, by William James Herdman, Chairman.

On Current Classification and Nomenclature, by William Johnson Jenks, Chairman.

On St. Louis Exposition in 1904, by William Benham Snow, Chairman.

Papers.

"Electrotherapy as a Specialty," Alfred William Bayliss, Buffalo, N. Y.

"Currents of High Frequency, Apparatus, and Therapeutic Uses," Francis Goodwin DuBose, Selma, Ala.

"The Effects of the Secondary Static Currents in Removing Albumin and Casts from the Urine," Boardman Reed, Philadelphia, Pa.

"Some Principles upon which is Based the Use of Electricity in Nervous Diseases," Alfonso David Rockwell, New York, N. Y.

"The Use of Electricity in the Treatment of Diseases of the Heart," Sigismund Cohn, New York, N. Y.

"Electricity in the Treatment of Diseases of the Stomach," Harvey Hamilton Roberts, Lexington, Ky.

AFTERNOON SESSION, FIRST DAY, 2 O'CLOCK.

Exhibition drill of the crew at the Life Saving Station.

"Electricity in the Treatment of Chronic Deafness," George Zena Goodell, Salem, Mass.

"Employment of Static Electricity in the Treatment of Nervous Diseases," William Benham Snow, New York, N. Y.

"Electrical Treatment of Trachoma and Corneal Opacity, with Illustrative Case," Margaret Abigail Cleaves, New York, N. Y.

"The Successful Treatment of Eighteen Cases of Granular Lids by the X-ray and High Frequency Vacuum Electrodes," Albert Charles Geyser, New York, N. Y.

"A Year's Work in Electro-Therapy," Laura Viola Gustin-Mackie, Attleboro, Mass.

"The Treatment of Urethral Stricture, and Fissure of the Anus by Electrolysis, with Report of Cases," John Clark Luke, Ocilla, Ga.

"A Plea for Electro-Therapeutics Proper," William James Herdman, Ann Arbor, Mich.

"A Plea for an Accurate and Scientific Method of Roentgen Ray Treatment," Mihran Krikor Kassabian, Philadelphia, Pa.

SECOND DAY, WEDNESDAY, SEPTEMBER 23, 1903.

9 *o'Clock.—Executive Session;* 10 *o'Clock. —Scientific Session.*

Problems in Electro-Therapeutic Practice: a General Discussion. Members are invited to submit difficulties, arising in practice, on which information or advice is desired, and to offer suggestions as to the solution of such problems.

Papers.

"Treatment of Tuberculosis, with Report of Cases," Russell Herbert Boggs, Pittsburg, Pa.

"The X-rays in the Treatment of Tuberculosis of the Throat," William Scheppegrell, New Orleans, La.

"The Roentgen Ray in the Treatment and Cure of Cancer, Lupus, Rodent Ulcer, and

Eczema, with Histories of Cases Treated," Elijah Wilkinson Smith, Terra Haute, Ind.

"The Use of the X-ray in the Treatment of Malignant Growths, with Relation of Cases," Marcus Morton Johnson, Hartford, Conn.

Twelve o'Clock.—Visit to United States Signal Station.

AFTERNOON SESSION, SECOND DAY, 3 O'CLOCK.

"The Position of the Roentgen Ray and Ultra-Violet Light in the Therapeutics of Malignant Diseases of the Uterus and Adnexa," Margaret Abigail Cleaves, New York, N. Y.

"The Type of Cell and Pathological Features of Carcinoma which Do not Respond to X-ray Therapy," William Leroy Kenney, St. Joseph, Mo.

"The Present Status of X-ray Therapy in the Management of Cancer," Clarence Edward Skinner, New Haven, Conn.

"The Use of Galvanic Electricity in the Treatment of Cancer and Kindred Diseases," William Winslow Eaton, Danvers, Mass.

"Exophthalmic Goitre and its Rational Treatment, with Exhibition of the Broom Electrode," Francis Besant Bishop, Washington, D. C.

"Some Therapeutic Indications for the Use of the Radiant Light Bath," Thomas Davidson Crothers, Hartford, Conn.

9 *o'Clock, P.M.—Executive Session.—Election of Officers.*

Reception given by the medical profession of Atlantic County, N. J., and the Academy of Medicine of Atlantic City, N. J., to the members of the Association and guests at the Marine Room, Hotel Windsor.

THIRD DAY, THURSDAY, SEPTEMBER 24, 1903, 9.30 O'CLOCK.

"Radio-histo-fluorescence," Wm. James Morton, New York, N. Y.

"Cataphoresis," James C. Gill, Chicago, Ill.

"The Roentgen Ray as an Aid in Diagnosis," Herman Grad, New York, N. Y.

"Perineuritis," Almerin Webster Baer, Chicago, Ill.

"Nerve Health and Nerve Debility: the Effect of the Actinic Rays Upon Tissues," Albert E. Sternes, Indianapolis, Ind.

"Retrospect of the Second International Congress on Electro-Therapeutics at Bern," Robert Newman, New York, N. Y.

"Some New Points in the Treatment of Tuberculosis," Wolff Freudenthal, New York, N. Y.

"Electro-Therapeutic Gleanings," Jefferson Demetrius Gibson, Birmingham, Ala.

" A Case of Asthma with Fibroids and Pelvic Adhesions Cured by Galvanism," Charles Augustine Covell, New York, N. Y.

The meeting will be held at the Hotel Windsor (special rate to attendants, $3.50 per day), where rooms can be secured in advance. Fare from New York *via.* Pennsylvania Railroad $4.75 for the round trip. Tickets good 15 days.

For any special information address
CLARENCE EDWARD SKINNER, M.D., LL.D.,
Secretary,
New Haven, Conn.

* *

SOME REMARKS ON SEASICKNESS.

DR. OTTO DORNBLUTH (*Münchener medizinische Wochenschrift,* April 7th) says that it has been well demonstrated that many persons have the sensations of beginning seasickness as the vessel pitches forward, and that this feeling of the "abdomen falling away" disappears as the bow of the vessel rises. He has found the wearing of a tight abdominal binder and the taking of deep inspirations as the ship plunges forward efficacious in warding off this feeling and often in preventing seasickness altogether. He also advises the nightly administration of from thirty to forty-five grains of sodium bromid at bedtime for a week before the date of sailing. Women will do well to substitute for their corsets a snug abdominal binder.

[Better fast by omitting one meal each day as a safe substitute for the sledgehammer doses of bromid.—ED. GAZETTE.]

TREATMENT OF COLD IN THE HEAD.

THE hydropathic treatment of a cold in the head is more reliable than any other, and one which scarcely requires the aid of a physician. It is as follows: In the morning, after rising, and at night before retiring, wash the feet and legs as high up as the knees in cold water, then rub them with a rough towel and massage them till the skin is red and glowing. In addition to this cautiously snuff tepid water up the nose frequently during the day, and sip with a teaspoon a glassful as hot as can be borne an hour before each meal and at bedtime. A few days is often quite sufficient for simple cases, and obstinate ones yield if the treatment is prolonged. No medicines are required. If taken in the first stages of the disease a cold is broken up which might otherwise become a severe case of bronchitis, lasting many days or weeks.

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LIVE BAROMETERS.

A COMMON leech makes a good barometer. Fill a tumbler half full with water, put the leech into it and tie a piece of muslin over the top to keep the leech from getting out. All you have to do to find out what sort of weather we are going to have is to watch the little creature. For example, when the day is to be fine the leech will remain at the bottom of the glass, coiled up in spiral shape and quite motionless. If rain may be expected, it will creep to the top of the glass and stay there until it clears off. If the leech twists itself and is very restless, there is going to be a windstorm. If it keeps out of the water for several days look out for a thunderstorm. The indications for frosty weather are the same as for fine, and for snow the same as for rain.—*Health.*

⁂

PRESIDENT ROOSEVELT'S "DEN."

THE walls of the President's new study are of a restful neutral tint, and the immense portrait of George Washington which hangs above the Colonial mantel is perhaps the most conspicuous object in the room. Although President Roosevelt's literary work—in the strictest interpretation of the phrase—has been confined, since he entered the White House, largely to the preparation of prefaces for certain books and other similar labors of love, it is known that his heart is still in the work, and he has a number of times during the past year spoken to friends of the interest with which he looks forward to the task of writing the history of Texas, an undertaking upon which he hopes to enter after he retires from the Presidency.

President Roosevelt is a very rapid worker. He employs dictation to a greater extent than any of his predecessors, but some of his manuscript is penned with a fine-pointed fountain pen. It might be supposed that if there was in the country any literary man free from nervousness it would be President Roosevelt, but nevertheless there are certain petty annoyances that "get on his nerves." One of these is the clamor of the telephone bell. Much of the President's writing is done in the afternoon or evening, for the reason that the morning hours must needs be given up to callers. A favorite time for writing is in the hours just before midnight.—*Critic.*

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A SARCASTIC collection lawyer might well speak, in a letter to a debtor of his unremitting kindness.

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"I SEE they have closed up the matrimonial agencies in Chicago."

"Isn't that too bad? Why, what on earth will become of all those lovely women with large fortunes in their own names who are so anxious to secure kind and loving husbands?"—*Cleveland Plain Dealer.*

HOW TO BE SLENDER.

How to become slender! Let the maiden inclined to embonpoint follow this advice, and her form should become as willowy as she could wish. Rise early and take a cold bath, rubbing vigorously afterwards with a coarse towel or flesh brush. Take a cupful of water before breakfast. Take [if any] one small cup of tea at breakfast, some dry toast, boiled fish or a small cutlet, and a baked apple or a little fruit. At dinner, which should be at midday, take white fish or meat, dry toast or stale bread, vegetables or fruit, either fresh or stewed; no dark meat; for supper, toast, salad, fruit, and six ounces of water. Hot water with lemon juice in it is also good for supper. Take another glass of pure water on retiring. When you have followed all these rules, and find yourself fairy-like in proportion, then you may begin to contemplate smart clothes such as only the slender can wear.

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THE USE OF ELECTRICITY IN SPRAINS.

Drs. Charrier and Planet have called the attention of the French medical public to the advantages of using electricity in sprains. Apostoli recommended employing the Faradic current with very rapid interruptions. The electrodes should be of carbon covered with chamois skin, and while the positive electrode remains in one position, the negative is moved all over the painful area. The results would seem to be surprising. After five minutes the patient is able to get up and walk, the pain having ceased for the time being. Two applications should be made daily, and the patient told to walk as soon as possible.—*Medical Times.*

LONG HAIR.

In a hairdresser's journal it is announced that a lady was awarded a prize for a head of hair 6 ft. in length. Such an extraordinary record, if rare, is not unique. Some time ago the name was announced of a Texan lady whose red-gold tresses measured 9 ft., of which 3 ft., when unrestrained trailed upon the ground. Actresses have supplied from their ranks many examples of the liberality of nature in this respect. A famous example was the renowned Mrs. Astley, of a past generation. She could stand upon her hair, which by its very profuseness nearly cost her her life, for it once caught fire on the stage.

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He who is silent is forgotten; he who abstains is taken at his word; he who does not advance goes back; he who stops is overwhelmed, distanced, crushed; he who ceases to grow greater becomes smaller; he who leaves off, gives up; the stationary condition is the beginning of the end—it is the terrible symptom which precedes death. To live is to achieve a perpetual triumph; it is to assert one's self against destruction, against sickness, against the annulling and dispersion of our physical and moral being. It is to will without ceasing, or rather to refresh one's will day by day.—*Amiel*

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Murphy—"Oi tell yez, Flaherty, th' saloon is th' poor man's cloob. Troth, Oi don't see how he could git on widout it."

Flaherty—"He couldn't. Iv there wor no saloons there'd be no poor min."

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, SEPTEMBER, 1903

MORE BUNGLING WITH THE X-RAY.

TAMPERING with this potent form of electrical energy still goes gaily on. The daily press has had a fresh attack of scientific enthusiasm. The latest bit of Roentgen Ray gossip gives a rehash and undoubtedly an exaggeration of some experiments conducted by an eminent light in the electrical world.

Mr. Edison has been "monkeying with a buzz saw" and the saw has as usual wreaked its revenge.

We are sorry for the victims, for they no doubt submitted to the risky experimentation in sheer ignorance of its possible dangers. But we have no patience with Mr. Edison, whose knowledge of the power of electrical currents should have made him more discreet. In fact he ought to be content to be at the head of electrical mechanicians without trying to be a pathologist. As we pointed out in a former article, medical men have done some careless and foolhardy work with the X-ray, but as yet no physician among the thousands who have experimented has repeated the disastrous experience reported in this instance. Mr. Edison has been called the Wizard of the Century, and while he has made a phenomenal success we can not help the feeling that it has been largely through his aptness in developing and commercializing other men's ideas rather than in the field of original invention. As an absorber and appropriator he has been a monumental success; but as an exploiter of medical electricity he has been entirely out of his element.

Advertising companies have for years been juggling with his name to give prestige and endorsement to their wares, panaceas and "electric" appliances, the latest and most flagrant instance being the bold and apparently authorized use of his son's name as the "inventor" of a snide electrical pad that is to cure everything from corns to carcinoma and from apoplexy to appendicitis.

It is simply a later and more plausible edition of the "electric belt" fraud, and yet it is little worse than the reported exhibitions of lay bungling with this wonderful force, electricity, of which the papers are sensationally prating.

That the X-ray can be made potent for evil is conceded by all who have studied it. But every medicinal agent that has ever acquired any permanent repute has been a virulent poison—usually the more virulent the more valuable. Witness mercury, strychnin, aconite, chloroform, cocain and scores of others. For an untrained layman to undertake to demonstrate the X-ray as a remedial agent is no more safe or sensible than to turn him loose in a well-stocked drug-shop with carte blanche to help himself and to experiment on his friends in any way that his fancy dictates. There are plenty of careless and enthusiastic but uninitiated and unfit medical men ready to blindly dabble in things of which they know next to nothing, without having irresponsible laymen undertake the business.

We are sorry for the men who lose their arms, hair, finger nails or eyesight, through these unwarranted and inexcusable meddlings; but these results are to be expected if men who know nothing of pathology or explosives are to be encouraged to play with the X-ray and dynamite.

It should, however, be borne in mind that if these disastrous results could not be produced by a misuse of the potent possibilities of the ray it would be proof positive that the ray has little or no power for good. That in incompetent and careless hands it can and does produce these disastrous results is direct proof of its wonderful potency, and indirect proof that it can be made effective for good. Even in the hands of medical men accidents and failures have occurred, are still occurring and will no doubt continue to occur, occasionally; but happily they are growing less and less frequent as a knowledge of the ray advances, and apparatus for its production and regulation is improved. Thousands of accidents have occurred with ether, chloroform, cocain, and with the surgeon's amputating knife. Does any one advocate dispensing with all these on account of the small percentage of accidents that are being sensationally reported?

Enough has been demonstrated to prove that the X-ray is an immensely potent remedy; that it is the one remaining hope of the thousands of victims of cancer, lupus, epithelioma, inveterate eczema, certain forms of fibroids and glandular hypertrophies. On the other hand it can be made an agent of destruction. Like Opie's colors it must be mixed (manipulated) with brains!

In commenting on the recent Edison mishaps, the distorted reports of which will no doubt deter some easily frightened people from venturing within the radiating aura of the only semi-visible but all-penetrating beam, the *New York Tribune* sensibly concludes as follows:

"Public regret will not be diminished by the discovery that, though the revelation is recent, the occurrences themselves date back two or three years. The latter circumstance makes the case more intelligible than otherwise, because the attendant risks were not so distinctly recognized by experts then as they are now.

"Shortly after Roentgen made his famous observation of a form of radiator that would penetrate quasi-opaque substances and then affect a photographic plate, the fact was utilized by surgeons in finding hidden bullets and studying fractures and dislocations. Permanent records could be obtained with the sensitive plate, and temporary inspection of the interior of the body could be conducted with the fluoroscope, which instrument, by the way, Mr. Edison did much to perfect. By means of X-rays, too, remedial effects have been produced upon sufferers from certain cutaneous diseases. Nevertheless, excessive exposure, either of a patient or a physician, to this useful agent results in an inflammation of the surface, unless shields of lead or aluminum are interposed. As with poisons, it must be employed with caution."

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TURKEY AND PORK.

By all means let Cincinnati, Chicago, St. Louis and Kansas City bedeck themselves with bunting and parade the reserves! The pious and original efforts of the illustrious author of Ben Hur have at last borne fruit. The Musselmen are hereafter to have a chance at measles as they tumble at the first stroke of the Muezzin to beseech Allah for a chance at more Armenian blood!

By all means let the Turks have pork.

In the first place it may help the Christians, whom they now delight in torturing and slaughtering, by making proselytes from the Moslem faith which prohibits pork. At least some of the faithful may give up heaven and the promised houris for ham sandwiches and pickled souse. And if they do not openly recant but play sneak with their diet, trichinae may get in their deadly work, ruin their biceps and hamstring muscles, and thus cure them of the rampant spirit of banditism and murder.

Furthermore, it will possibly lessen the consumption of pork in Christian America, which wouldn't be an incurable calamity.

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But No Remedy.—Doctor: "Have you taken any remedy for this trouble?"

Patient: "No, doctor, I have not; but I've taken a power of medicine."—*Harlem Life.*

PREYING ON THE PROFESSION.

Judging by the number of "great expectation" circulars that reach us every month, and by reports from professional brethren with whom we come in contact, there has been for several years a systematic effort on the part of mining operators and those who pretend to be operators to induce medical men to invest all their spare cash in mining ventures, located for the most part in the remotest fastnesses of the Rocky Mountains.

We quote one of the most recent ones, omitting names, dates and places:

"Doctor—We are in position to make your money earn ten times what it will in a bank, and the principal will be twice as secure. How? By making investments through us in '———' securities. An investment of a hundred will pay you close to a thousand in a year. Impossible? Not much. Write us and we will place in your possession convincing facts. We are neither extravagant in our statements nor optimistic in our views.

"Read what President ——— of the ——— Railroad has to say, regarding the camp:

" 'I spent $20,000 having that district inspected by the best mining experts on earth before spending $3,000,000 building a railroad.' "

And much more of the same tenor. Now, it can be set down that whenever a responsible man, company or corporation has acquired a very, very, *very* valuable mining property there is plenty of legitimate capital ready and anxious to finance the property on a business basis. When the alleged owners of such a property issue flamboyant circulars setting forth their Munchausenish claims and flood the mails with them, appealing especially to professional men who may have laid by a few hundred dollars for a rainy day, it may be set down at once that they are heartless and unmitigated swindlers. If they have any property at all it is some worn out and abandoned mine or claim in which some other company has expended half a million or a million with no returns worth mentioning. And when they offer "a limited number of shares at ten cents on the dollar, full paid and non-assessible, if taken before the — day of —, at which date the price will positively be advanced to twenty-five cents a share," it is perfectly safe to write the scheme down as an unmitigated fraud from start to finish.

And yet Colorado, Montana and other mountain states are full of these plausible but utterly baseless schemes.

Now and then honest men are deluded into buying worthless old or new claims, and undertake some legitimate work, but in 999 out of a thousand instances they end up by wasting every dollar they invest and every dollar they can induce their friends to invest.

* *

PROTEST AND PROMISE.

We have frequently protested against the use of the word "malaria" (bad air) as a name for intermittent fever or "fever and ague." The layman who tells his medical adviser that he is afraid he has "malaria" is certainly excusable as long as the said adviser talks and writes in the medical journals about "malarial fever."

But this is only a single example. Both the medical journals and the daily press are full of similar misfits. To cite another equally common example, take the word *magnetism*. This is one of the popular terms that is made to do duty in a great variety of senses and relations in which it really has no connection. We talk about the "magnetism" of public speakers, ministers, singers, society men or women, of diplomats, manipulators of trade, and of advocates who "magnetize" juries and overawe the judge on the bench. We say that this or that public man, business man or casual acquaintance has a "magnetic" handshake, or that another's voice is "powerfully magnetic."

Clairvoyance, mind-reading, telepathy, hypnotism, mental healing, Christian science, Dowieism and all the other isms of the day are attributed to the manifestation of some form of magnetism.

Now magnetism proper is a force that is inherent in a certain form of iron ore called magnetic iron. There are also methods of making artificial magnets, and the electric current is considered either a form, a result, or a materialization of magnetism. At all events, without the aid of this principle it would be impossible to utilize the electrical current for mechanical and other purposes.

But it turns out on careful scientific investigation that the human body neither contains nor can be made to evolve the slightest degree of magnetism. The most delicate and unmistakable tests have been applied by scientists whose word is accepted everywhere as reliable, and always with the same result. The human body does not possess and cannot exert the faintest degree of force that answers to the name of magnetism. The popular use of the word is therefore unwarranted. As used in a figurative or literary sense it is expressive and fairly well understood. Scientifically speaking, magnetism is a result or condition and not a force or cause. It is a result of electric movement or electric force. In short, science has about concluded that all manifestations of force, whether so-called mechanical or as exhibited through vital organisms, are comprehended under the term electric energy. Magnetism is merely one of the many conditions of matter induced by electric currents.

Prof. D'Arsonval, the French savant, who has made more elaborate experiments with this subtle agent in its relation to human beings than any other living scientist, asserts that electricity is destined to revolutionize the entire system of medical practice. He believes that the world is even now on the eve of this therapeutic revolution. It possesses all the potencies required by either physician or surgeon. All that is lacking is mechanical technique and the necessary discretion in adapting and applying it. It can be made anæsthetic so that severe surgical operations may be painlessly performed, and in most instances can be made bloodless, by means of electric knives. It is easily made a most powerful antiseptic; and it is the best and perhaps the only true restorative of lost or debilitated function. Just as it can transform a passive and inert piece of metal into a powerful and permanent magnet, it can change and revivify the flaccid and debilitated vital machinery, restore it to its normal functions and give it "tone."

It is held by many that medicines which have acquired repute in "curing" are potent only as they are capable of exciting electric energy.

And this leads to the corollary that the size of the dose is not essential, only so that it is competent to induce the initial excitation. The only essential question is to determine what this dosage really is. If a milligram, or a millionth part of a milligram, will do the work it is foolish to administer a more heroic dose.

The history of medical practice during the past generation has been steadily toward smaller doses. This is not on account of the "magnetism" they possess but of the electric energy they are capable of exciting.

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Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

THE MINERAL, ANIMAL, VEGETABLE AND SPIRITUAL KINGDOMS OF FOOD.*

By Ephraim Cutter, M.D., LL.D.

New York.

Continued from August Gazette.

2. *Animal Kingdom Food.*—Since Adam, all mankind came from animal parents. The first food provided by the Creator is milk—an animal food. Normal human milk is universally conceded to be normal food for infants. Jesus Christ, the God-man, took this normal food, else Joseph could not have carried Mary and her babe, less than six months old, on an ass to Egypt by night to escape Herod. Others in the Bible list of milk eaters are Isaac, Moses, Samuel, Loruhamah, not to overlook the Pharaoh of the Exodus, whose intaglio was not long ago given to the American people, representing him 17 years old standing and sucking the breast of the goddess Isis, as he wanted to be considered a god—*i.e.,* Isis' son. It would have done just as well to have had Pharaoh depicted at the age of 17 months. Hence, we infer that human lactation was then carried almost out of the child's teens.

Baron Kuki, late Japanese Ambassador to the United States, said that it was common to see 10-year-old children at the breast in Japan. It may be so; but probably artificial foods for infants were not used before our era, as they are not to my knowledge mentioned in history. All nascent infants are entitled to normal breast milk. If not had they are cheated of their precious birthright in motherhood. It should be said that a diet of two-thirds by bulk of animal food to one-third by bulk of vegetable food has been found by the writer the best cure of agalactia.[1]

Cream, butter, cheese—derivatives of milk—if dispensed with would be much missed, specially by the agriculturists, who form the chief bulk of our population. Also eggs, beef, mutton, pork, poultry, fish, game, shell-fish, dispensed with would make a bad showing for the nation's finances, as these figures, from the 1901 report, United States Agricultural Department, show value of cattle $1,700,000,000. The United States Crop Reporter gives the value of our farm animals, January 1, 1903, at $3,102,515,540. If these were not used as food the depreciation of values would bankrupt our nation.

And yet some say that the animal food kingdom must not be used.

Further: The great natural divisions of animals into carnivora and herbivora directly show the indispensability of animal food for animals, while there are some carnivorous plants besides. Just here let me lay down a therapeutic law—*i.e.*, carnivora have small alimentary canals, relative to herbivora. To reduce man's enlarged thickened intestines let said man live on animal food. Don't forget this in your practice.

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* A lecture at the College of Physicians and Surgeons at Boston, April 27, 1903, from the Chair of Chemical Morphology and Applied Medicine.

[1] As second witness, see "Food in Motherhood." E. Cutter. David Scott. London, 1890.

Supposing carnivora lived as herbivora, one may learn what would be likely to happen from the experiments of the late very distinguished Dr. Joseph Jones, of New Orleans. Carnivorous turtles fed on parsley at their autopsies showed fatty degeneration in their tissues. It is difficult to see how the kingdom of animal food can be done away. The Eskimo (meat eaters) would not thrive much on vegetable food alone. Arctic explorers testify that their health was fine while living on meat. Nansen was one witness.

Let us now inquire about the relations of animal kingdom food to disease.

Causal.—Tenia come through beef, fish, shell-fish; trichina come from the hog; ptomains from decaying animal food, etc. Animal food overeaten is liable to ferment with the growth of the yeasts peculiar to them and produce H. S. P. S. that paralyze parts near and remote and cause diseases of neurasthenia, with or without organic changes, to name no more, save that vegetarians charge nearly all the diseases of mankind to animal food.

But it should be remembered that all food eaten ought to be in a normal condition, properly cooked or raw—biologically fit to eat. In other words, used with human and animal common sense. Diseased animals, such as those who have nephritis (so-called) or Bright's disease of the kidneys and (it may be added) lungs, are not here regarded as man's proper food, and the allusions in this presentation *always imply food good and sound in quality and quantity.*

Beef and mutton are the best animal foods. Cod is the best of fish. Clams, soft (M. Arenaria) come very close to beef. A great deal depends on the freshness of animal food. Unless half cooked, keeping deteriorates their qualities for the most part; cold storage has helped this much. It is not modern. Some years ago a behemoth was found in Siberia imbedded in a glacier, it was said, for 3,000 years. Still its meat was good, and eaten at a banquet by savants in London with no bad results. Animal food can be lived on longer than any other food, as a rule. Kit Karson, the erst famous Rocky Mountain guide and hunter, lived on beef and water indefinitely in health. So do the cowboys of the South American pampas, among whom Sir Francis Head, an English nobleman, travelled in 1825, with a retinue of thirty servants supplied, so that his French chefs could furnish home cooking. But seeing how well the cowboys fared on beef and water, tried it himself. He said the result was that he felt that no exertion could kill him! Such was the vital dynamics thus conferred.

Dr. Livingston said that the Makalolo warriors (carnivora) took as servants herbivorous Africans on their forays. The latter would lie down and die from sheer fatigue, while the former would go on tireless.

This leads us to say that ***hearty food*** is for the heart. Beef is such. Curious that it is not more used in the treatment of heart disease. Our limits admit only of facts to show why the animal food kingdom ought not be rejected from heart treatment. I deem this idea one of the greatest contributions to medicine of the nineteenth century, as the cases show.

More than twenty-five years ago a middle-aged wife had twice the normal area of cardiac dulness on percussion; heart's sounds heard over same area; prolonged murmur over the left auriculo- ventricular valve; frequent severe paroxysms of pain in heart running up to the shoulder and down the left arm, shortness of breath, face anxious; breathing difficult. She said it felt as if she was in the grip of a giant's hand on her chest. (Angina pectoris.) Her husband, a physician, daily expected to find her dead on his return from his rounds. Beef—sound, good and lean—was the main agent of treatment, yet she lived twenty-two and a half years afterward. About four years before her death from locomotor-ataxia, a physician of San Louis Potosi happening where she was, was asked to examine and tell what was the matter with her heart. He did so, and said he could find nothing wrong with it.

A granddaughter of the above case 18 years old, three years ago presented the physical signs of hypertrophy and mitral valve lesion, and recovered on the same diet.

Next is a case of fibrinous concretion (erst called polypus). Diagnosis: Double area of dulness on percussion, and heart sounds muffled, indistinct, and hard to make out; seizures of cardiac asthma, in which death was imminent; left radial pulse one-third less in volume than that of the right, etc. Beef—sound, good and lean—was the main food in treatment. After a time the area of dulness was much reduced, the normal sounds returned, the radial pulses became equal, and the patient, a policeman, felt so well that on his own responsibility he undertook night and day work (too much for any one). The diet was not kept up, the signs of concretion did not reappear, but the hypertrophy did. A return to his former physician and diet was made too late. He died.

Allow a personal reference. My parents both died suddenly of heart disease. Symptoms of enlargement and other signs have been found in my own heart. Animal food has kept them in abeyance.

Fistulous Pleuritis.—More than twenty-years ago a middle-aged hotel keeper had a large fistula in the lower third of the right chest outside, some two inches long and half an inch wide, continually discharging pus. He was put on a diet mainly of lean, good, sound beef (landlords know how to select it) and went South to an hostelry. Four years afterward he was reported cured.

A like case of a single woman who was treated with the special care of a sanatory was discharged cured in about two months. Both cases had been advised to have their ribs resected, deforming their chests. But how much better they were—cured knifelessly!

"Frog felon" is where a felon on the hand is so extensive and severe, burrowing deep in among the tendon-fascia, legiments and bones, and causing so much swelling as to remind one of a big bull-frog. Such was the case a few years ago of a middle-aged bachelor—a former patient of mine. While summering on the south Massachusetts shore he went out in a row-boat in the surf. A heavy wind came up and he injured his hand by rowing, took cold and started inflammation beneath the periosteum. His suffering was terrible, though his surgeon cut freely and deeply. The situation became serious and the prognosis was fatal. Then the writer was called, approved of what had been done, but recommended one or two porter-house steaks daily, with clear tea or coffee for drinks. Nothing else. This prescription almost paralyzed those interested, but it was carried out, and under the surgeon's skill the man got well with a much better hand than was expected.

I was once poisoned from a patient, on the proximal phalanx of the right forefinger. Blood poisoning set in. The hand swelled much like the frog felon case. The digit was freely laid open. The sore was covered with an ointment of sulphate of quinine (ʒj to ℥j) that relieved the pain that had circled the wrist as with a wall of fire (opiates were useless). Porter-house steaks, clear tea, coffee or hot water were the only food eaten.

Later, at an autopsy, the proximal phalanx of my left little finger was scratched deeply red (but no blood drawn) by coming in contact with the sharp edge of the cartilage of the second left rib as the lung was taken out. This injury should have been treated at once with the etherial tincture of aristol that I usually carry with me, but I had it not. So it went on and lasted for nearly two years with an umbilicated, hard and dense scab and looking much like an eruption of severe varicella. The beef was adhered to as well as could be, but sickness in my family and other hindrances interfered, so that for months it remained about the same callous umbilicated scab, surrounded by a skin of glistening, white, pale color. Finally I went to our cottage at Buzzard's Bay, kept on with the beef, bathed in the sea, dug gravel in the ground, burned the said scab with galvano caustic red-hot, without anæsthesia, and recovered.

Pelvic Areolitis.—Some fifteen years ago a young married woman was found with the fever, pain, and physical signs of pelvic abscess. Her local physician, from the gravity of the symptoms, foretold a recovery so partially as to render her a helpless invalid for life should she survive. He ordered gruel, but her father-in-law, a physician, put her on beef alone and evacuated the abscess when it was ripe by a solution of continuity. She is now a real queen of motherhood, active indoors and out. Not a vestige of pelvic cellulitis.

Another instance is that of a city lady 40 years of age; six years with a right pleuritic effusion; with also chronic bronchitis, anteversion and anteflexion. Treated on beef and whole wheat, clear tea, coffee or hot water. She was so well that she ventured out to do her 1901 Christmas shopping just after a heavy snow-storm; had to ride home on the step of an electric car. She presented the systemic and local signs of pelvic areolitis and was kept on her diet in bed. She was given tonics and local analgesics. The abscess evacuated itself. Three months later there was found no evidence of its existence.

The effusion is lessened. Probably the thick chronic adhesions will resist all treatment, but under the circumstances her partial recovery is wonderful. (Mem. 1. Breathing heard plainly below breast.)

Fibroid tumors.—Some years ago (in the *American Journal of Obstetrics*) the writer published a dozen or more cases of uterine fibroid mainly cured on animal food. Most of them are alive and well. One of the latter was a very interesting case of a physician's wife, whose fibro-cyst was enormous, enlarging her beyond normal pregnancy. In three months the tumor was just perceptible on palpation above the pubis. In the same way fibroids of the heart have been removed.

In accord with the law laid down above, that carnivora have small alimentary canals and herbivora large, and if man with enlarged alimentary canal lives on animal food said canals become reduced. Let illustrations be introduced: e. g., a young girl, some ten years ago came to the writer as having stomach trouble that did not yield to treatment. Percussion showed continuous tympanitis over the whole distended abdomen, even to the pubis. Auscultation revealed metallic tinkling of a large cavity. Succussion produced splashing sounds. At times there was vomiting of undigested food, dark colored and putrid. She was fed on beef solely, with clear tea, coffee or hot water. Salt and pepper were used sparingly as relishes. In time she came down to normal size and normal physical signs. She is now well and a wife.

A childless middle-aged wife suffered what was termed "gall stone colic." One stone was found. After this severe attack she had others but no gall stones were detected. In consultation, she was found with her abdomen enormously distended, the chest was expanded; diaphragm pushed upwards. No hepatic dulness on percussion could be found. She seemed inflated, like a bicycle tire. The law above was quoted to the consultee, who put it in practice, with beef as sole animal food, clear tea, coffee or hot water as drinks. This was kept up more than a year. The canal came down in size to normality. The borborygmi and commotion of intestnal contents are well-nigh removed. For about thirty years previously she had painful menstruation; after this regime her menses have been painless. Lately she has had a few attacks of colic, due to overdoing in house-moving, entertaining guests and night disturbances in the flat overhead.

In this line come *intestinal strictures,* where her bowels are so thickened and enlarged inside as to diminish their calibre the same as if tied with a string. Sloughs of said tissue have been evacuated with hemorrhage more or less profuse. In one instance the specimens were put in a solar microscope and the blood vessels beautifully shown on a screen.

Ten years or more ago a clergyman brought to my attention the case of his son-in-law, another parson, who had been surgically treated for stricture of the rectum, and said that it was returning. The beef treatment was suggested. It was tried, and the father reported his cure a few years later. He was at last accounts in charge of a parish and doing his work.

Chronic diarrhea, or consumption of the bowels, is more common than thought to be. No treatment avails so much as that based on good, sound beef. It comes mostly from starchy and sugary food eaten in excess, and afterward fermenting. The common alcoholic and vinegar yeasts do not attack sound beef, and hence one advantage. One authority considers all cases of tuberculosis to begin with the intestinal. The writer agrees. Those whose bowels resist successfully the entrace of phthisin (the essence of tuberculosis) into the blood are those considered here, and are remarkable for their long continuance; 1861 war veterans present instances—for example, a bugler had this disease in the army, and thirty years after was cured by good sound beef diet.

At the Berlin International Medical Congress, 1890, the writer presented a report of 100 cases of pulmonary tuberculosis treated mainly by beef diet. Forty-six were cures, most of them standing cured for ten years.

In December, 1863, Dr. Benjamin Cutter and son visited a man whose physical and systemic signs indicated tuberculosis of both lungs and pleuritic effusions. He was by them given up to die, but "as a bow at a venture," the son, finding that the patient had a fine hog in his pen, told him "to kill him and eat nothing else this winter." The man did so, recovered his health, to die a drunkard fifteen years afterwards.

Agalactia restored by beef two-thirds and vegetable food one-third by bulk.—A multipara lost her breast milk when her babe was three months old. Treated as above the secretion soon returned and remained. The child grew in body and mind so as, at the age of thirteen months, she nearly caught up in size and weight with her sister, two and one-half years older, and excelled her in intellect and ethics.

Asthma.—In a case of twenty-six years' standing, complicated with albuminuria, renal casts, fatty epithelia and uterine lesions, a patient was treated medically and beef was the main diet. The asthmatic acicular crystals in the sputum first pointed out and depicted on plates by an American forty years ago were typical. Soon after the beginning of her treatment there were no asthmatic paroxyms. She lived for several years afterwards, and from imprudent exposure (as she thought herself so well and strong) died from some obscure cerebral trouble unverified by autopsy. Other cases could be added.

Rheumatism. — To repeat, the writer thinks that its main feature is gravel in the blood or deposited crystalline, massive and granular salts. When plenty of water is given to dissolve said salts, beef helps nature to remove said gravel by conferring maximum of force with a minimum of material. Conventionally uric acid gravel is the great salt at fault. The writer cannot recall ten cases where uric acid has been met with in the blood, while oxalate of lime, triple phosphate, cystin, stelline and stellurin, etc., are common. All these have been removed by animal and mineral food, though beef is considered conventionally to put uric acid in the urine. The writer's experience for many years has not sustained this view. But uric acid can always, as a rule, be found when not manifest, by acidulating with chloro-hydric or nitric acid, (as Prof. T. P. Cooke, of Harvard, taught in his first medical laboratory in America, President Eliot, his assistant, in urine.)

Rightly did the United States people shower honors on Dr. Lorenz for his work in dry surgery. But the presumption is that had his cases of congenital dislocation of the thigh been blest with a motherhood fed on two-thirds animal to one-third vegetable food by bulk there would not have been any such cases to treat.

Would that other mothers understood this.

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WHAT CONSTITUTES DEATH AND WHEN DOES IT OCCUR?

Herbert Spencer, it will be remembered, has defined life as a continued adjustment of internal relations to external relations, and it is doubtful whether any definition of death would be better than a rupture of that adjustment. Ordinarily, of course, every one thinks that he knows when a man is dead. But when looked at more closely the subject is not quite so simple. For example, shall we say that a patient is "dead" when respiration ceases? In the writer's experience a woman suddenly became unconscious and ceased all attempts (even the slightest) at respiration. Under artificial respiration, however, the heart beat for five hours, when the artificial respiration was given up. The autopsy showed hemorrhage into the ventricles of the brain. Was, then, the woman "living" during the five hours of artificial respiration, or not? The question, while it may have somewhat the aspects of a metaphysical juggle, is by no means entirely of that nature. For on it might depend the question of survivorship; the question in law of "which died first," involving an entirely different inheritance of property. Again shall the criterion be the cessation of the action of the heart? Brouardel cites a case witnessed by Drs. Regnard and Paul Love, in which the heart beat for one hour in a decapitated murderer, and he himself has seen the heart-beats persist fifteen, twenty, and twenty-five minutes in decapitated dogs, and in those dying from hemorrhage. It is no easier if we turn to the brain, for its functional activities are no more necessarily co-extensive with life than are those of the heart and lungs. Unconsciousness is normally periodic in sleep, and pathologically it frequently occurs without involving the cessation of "life." The solution of the riddle really lies in the fact that "death" is a negative term denoting merely the cessation of "life." This throws us back upon the question of what "life" is. Without any desire to dogmatize on this much-debated question (and leaving others free to inject into it any additional factors or elements that they please), "life" appears to be merely a convenient name for a series of physicochemical processes which avowedly differ much in complexity from "inorganic" phenomena, but which have never yet been shown to differ from them in kind. On the contrary the more we learn about physical and chemical phenomena, the more "physiological" phenomena we are able to explain. The essential of "life" then consists in the *capability* of responding serially and appropriately, by continual adjustments, to changes in the environment. It is not the actual demonstration at every moment of its presence that constitutes "life." For, unless we are to introduce some metaphysical dodge-the-issue (as, for example, "capable of life yet not living, or other empty phrase"), bodies are either "alive" or "dead." What meaning, however, has the word "alive" when applied to the seeds of wheat which grew after having lain thousands of years in a mummy's coffin? Evidently this: A seed represents a collection of chemical compounds which, *under suitable conditions* (of temperature and moisture) are capable of producing, by their mutual interactions, another series of compounds, which, in their turn, are capable of producing, by their interactions, a third series of compounds; the first, second, and third series of compounds representing in their totality respectively the first, second, and third stages in the development of the plant. But, as Ryder has shown, this repetition in heredity is conditioned upon repetition in environment—that is, the seed will respond in a regular serial order only provided the physical and chemical forces act upon it in the regular serial order to which it has been adapted, through countless generations, to respond. If beyond certain rather narrow limits, the forces acting upon the seed depart from the order and extent for which it has become adapted, then something other than the accustomed "normal" development takes place; and the result is some form of "monstrosity." The eggs of fishes when extruded are flabby and collapsed, and in this condition they appear to be in physicochemical equilibrium. Placed in water, however, during the first twenty minutes they imbibe it, swell, and become round and smooth, and fertilization occurs. But after the swelling and fertilization have occurred, the contents of the egg are in a different physical and chemical condition than when first extruded, and this different physical and chemical condition it is which involves the next change of state, cleavage. Yet that the latter change is no necessary outcome of the swollen, fertilized condition is shown by the possibility of inhibiting it indefinitely by a lowering of the temperature. When two cleavage spheres are formed, the physicochemical momenta are different from those acting prior to the first cleavage, and just such as to bring about the redivision into four; and so on; each stage bringing about, under the "normal" conditions, the succeeding stage.

The possibility of the continuance of "life" then depends upon the ability of the chemical compounds which (collectively and at any given moment) we term "the body," to give rise to another similar collection which shall be able *inter se* to maintain a similar adjustment of internal relations to external relations. Conversely, when the formation of such a derivative collection is no longer possible, "death" ensues. Less abstractly put, "death" is the name we give to the inability of the organs to act together with the harmony which characterizes "life." The rupture of the vital harmony does not, however, preclude a certain amount of activity of individual organs. Thus, perfused with blood, or other suitable fluids, the heart may continue to beat, the liver to secrete, etc., though the individual is "dead." This mode of viewing the question seems to be the only philosophical one. For just as there is no possibility of assigning a moment at which, in development, the physiochemical forces pass over into the "vital," so here there is no possibility of saying when the "vital" forces pass over into the physicochemical. All we can do is to set an arbitrary limit, by way of definition, and say that the "individual" is "dead" when the harmony of interaction in the "vital tripod" ceases.—*Med. Record.*

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THE BIRTH RATE IN FICTION.

As the question of the size of family appears to be much discussed just now, I should like to call attention to the low birthrate in novels and plays, which, united as it is with a high death-rate, will inevitably lead to the rapid extermination of the hero and heroine. I am under the impression also that the birth rate is decreasing, and while families of a respectable size may be found occasionally in Thackeray and Dickens, they scarcely exist in Meredith, Hardy and James. Although, so far as I am aware, attention has never been called to these alarming conditions, their existence will be recognized readily by readers of novels and playgoers. It will suffice to refer to two novels, which I think are fairly typical—"Vanity Fair" and "Beauchamp's Career."

Becky Sharp was an only child, nor do we hear of uncles or aunts. "Vanity Fair" is a novel without a hero. Sir Pitt Crawley, twice married, has four children, his brother five and his sister none; so there is an average family of three, just sufficient to maintain that questionable line. Osborne and Dobbin each have two sisters, and we have again the family required for a stationary population. The Sedley family consists of brother and sister. In the next generation, however, things are worse. Amelia has two husbands and two children, Becky one child, Sir Pitt one and Josh none. This is apparently an average family of 1.83, which is almost exactly that of the Harvard graduates, according to President Eliot.

In "Beauchamp's Career" Nevil is an only child and leaves a child to survive him; Everard Romfrey, marrying childless Mrs.

Culling, has one child who dies in infancy; his brother has none; old Mrs. Beauchamp has none. Austin, Baskelett, Lydiard and Dr. Shrapnel leave no posterity. Of the three heroines, Jenny and Cecilia are only children; Renée is of the typical French family of two, but has herself no children. This is obviously a very bad state of affairs —an average family of one-half child and a net fertility of only 0.43. As these statistics have been collected in large measure from a fallible memory, they may not be exactly correct, and they may not be entirely representative, but I am confident that they would be substantially confirmed by more accurate and extensive data. They certainly foretell the rapid extermination of population of the novel.—*Pop. Sci. Monthly.*

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TREATMENT OF BALDNESS.

By Albert Bernheim, M.D.,

Philadelphia.

I believe that every bald man under 50 should find it worth a trial to endeavor to promote a growth of hair on his bald scalp; this trial should be of at least three months' duration. As I have never made a specialty of treating baldness, I am not prepared to present photographs of "before" and "after." The youngest of my patients was 16 and the oldest 41. The occupations represented were beer-brewer, dentist, druggist, physician, bank clerk, butcher, schoolboy, schoolgirl, medical student, traveling salesman, cattle dealer, army officer. All the patients were improved, and in three, baldness disappeared entirely, the hair returned and remained.

My treatment consisted of the following: 1, Time. 2, Patience. 3, Tar soap. I would advise having the soap made directly from a prescription, which contains about 40 parts of birchwood tar, or better, beechwood tar to a soap mixture of 60 parts. With this tar soap the scalp should be shampooed every day for at least eight weeks, later on every other or every third day for another four or eight weeks. The shampooing must be done thoroughly for not less than ten minutes; after this the soap should be washed off first with warm water, gradually coming to cool or even cold water; then the hair and scalp should be patted dry with fine cloth or tissue paper or paper napkin; it must not be rubbed dry. 4, the following mixtures:

The scalp should now be rubbed with a solution of

Mercuric chlorid.........	1.0 to 300.0
Glycerin.	
Cologne spirits......of each	100.0

For this purpose use a small soft woolen tissue and rub for five minutes: after this rub the skin dry for another five minutes with a solution of

Betanaphtol....	1.0
Absolute alcohol.......	200.0

After this use as freely as possible a hair oil, consisting of

Salicylic acid.......	2.0
Benzoated tincture......	3.0
Neatsfoot oil.......	100.0

Rub generous portions of the oil into the scalp for five minutes.

The idea of this procedure is to remove by means of the stimulating soap all dust, etc., which may adhere to the hair and scalp; the mixture of the sublimate is readily taken up by the hair follicles. The sublimate seems to have a special tendency to stimulate the growth of hair; this has often been observed after the use of either moist or dry sublimate dressings.

The naphtol alcohol dries, removes fatty substances, and disinfects the scalp and prepares the pores for a ready absorption of the hair oil in question. Neatsfoot oil* is recommended, as it seems that this animal oil is better assimilated than vegetable oil. (Lanolin may also be used.)

However, a good result in alopecia can only be expected when the process of destruction has not gone too far, though even in these cases the itching, the development of dandruff and of seborrhea, will be stopped and the hair will not continue to fall out, so that the head at least will keep the hair it still possesses. In cases of alopecia areata the process often has a limited course and new hair will make its appearance, but in the beginning it can never be stated whether the process will limit itself or not. In the latter case not only the hair of the scalp, but also that of the beard, mustache, pubes, eyebrows and eyelashes, may disappear and never return unless treated by the foregoing method. If this treatment has a good result in premature baldness it certainly has in alopecia areata. In very obstinate cases it may be necessary to resort to further remedies, such as the use of the sublimate several times a day, carbolic gauze dressing, turpentine, pilocarpin, etc.

Conclusions.

1. Baldness should not be treated as a joke, especially by the physician.
2. Baldness is infectious and contagious.
3. It can be prevented by prophylaxis.
4. It can be cured in a great number of cases in persons under 50, and a trial is worth while in persons above this age.
5. The foregoing treatment does considerable good if performed in the right way and in a skilled manner.
6. Patience in the patient is a condition *sine qua non.*
7. Patience in the physician is an absolute necessity.—*American Medicine.*

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* Neatsfoot oil has often been objected to on account of its odor; of late years, however, neatsfoot oil, so purified that it has scarcely any odor, can be bought in the open market.

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THE LAW RELATING TO DOCTORS' FEES.

Under the heading "The Law of Physician and Patient," William C. Tait, LL.D., in the *Pacific Record of Medicine and Surgery* several years ago, related the case of a physician who charged $1,500 for a gastrostomy, and $100 each for night detentions, and at the rate of $100 each for sixty-two visits, making a total of $9,200. The patient died. The executors offered to pay $2,750. The doctor was willing to accept $4,000, but this was rejected. A jury, after due trial, awarded him $6,500, being $1,500 for the operation as charged, and $60 each for the visits. The patient died worth $250,000, which fact was shown by the doctor during the trial, despite strenuous objections by the lawyers for the defence. The judge held, that in a case of this kind it was proper to show the patient's ability to pay, for upon this fact a physician was largely compelled to rely for proper and adequate compensation. He intimated that life and health were not wholly measurable in dollars and cents, a given amount of which would manifestly be of smaller moment to those who had much as compared with those who had little. It was also permitted to be shown that it is a general custom on the part of the medical profession to consider the financial ability of the patients, and this testimony was not contradicted.

Mr. Tait says, "It is the wealth of the patient which regulates the amount of compensation as every professional man knows. In other words, professional charges are regulated by custom, not by law." He says that judicial decisions are rare in the matter of showing on the part of physicians a professional custom and usage of considering the financial ability of the patient in making charges. As a matter of fact, we would suggest that the common circumstances are such that the physician is compelled, much against his will and understanding, to consider the financial ability of his patient in charging, but against himself, making small charges, and shaving even these before he gets his pay, because of the poor circumstances of his patients. Why not, then, also work this rule occasionally in the other direction when there is an opportunity?

In the case of Czarnowsky *vs.* Zeyer, 35 La. Ann., 796, the judgment of the lower court was increased to $1,000 by the Appellate Court, on the ground that "The judgment of the lower court was disproportionate to the value of the decedent's estate, the inventory showing it to be over $8,000." In the case of Lange *vs.* Kearney, 4 N. Y. Supp., 15, in refusing to cut down the physician's charge, the court said, "That although the sum demanded by the plaintiff seemed to be large in contemplation of the defendant's income, nevertheless, it appeared that he was the owner of property, and could pay it, and had the ability to do so." Again, Mr. Tait says, "The several physicians of this city who were fortunate enough to attend the late Senator Fair during the last three days of his illness were allowed $2,500 each for their services by the Probate Court of this city." How much would they have been allowed for the same services had they been rendered to the Senator's valet?

In all kinds of professional services the law implies a promise to pay on the part of the person at whose request, or for whose benefit, they are rendered. Again, unlicensed practitioners cannot recover by law, despite a written promise to pay a fixed sum, or even on a promissory note, for professional services, because they are contrary to law, for no man can legally do that which is against the law, and invoke this same law in securing to him compensation for its violation.

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NOVEL METHOD IN RELIEVING PAROXYSMS IN PERTUSSIS.

Jacob Sobel (*Archives of Pediatrics*) recommends a method of relieving the paroxysms in whooping-cough first suggested by Naegeli in 1889, but not mentioned in the standard works. This consists in pulling the lower jaw downward and forward in the same manner usually employed by anesthetizers. He tried this in ninety-six cases and it failed in only nine, or in 9⅓ per cent. He summarizes his conclusions as follows:

1. Pulling the lower jaw downwards and forwards controls the paroxysms of whooping-cough in most instances and most of the time.

2. The method is usually more successful in older children than in younger ones and infants.

3. In cases without a whoop the expiratory spasm with its asphyxia is generally overcome, and in those with a whoop the latter is prevented.

4. As a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis and is as successful as any single drug, or even more so.

5. Mothers, nurses and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested.

6. The manipulation is harmless, painless and easy of application without any of the ill effects of drugs; it offers a maximum good effect with a minimum derangement.

7. The only contraindication to its application is the presence of food in the mouth or esophagus.

8. Patients treated in this manner are less likely to suffer from complications and sequelæ than those treated only medicinally; they emerge from the disease in far better condition, less exhausted and less emaciated because vomiting has been controlled.

9. It is advisable to try the maneuvre in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of

enlarged cervical and bronchial glands, influenza, glottis spasm in catarrh laryngitis), although my experience has seemed to show that it is far less efficacious in these conditions than in whooping-cough.

10. This method, being directed mainly to the control of the glottis spasm, does not preclude the advisability of supporting and sustaining the patient, guarding his gastro-intestinal tract, establishing equilibrium in the nerve centers and affording him every possible hygienic advantage.

11. It is particularly indicated in instances complicated with diffuse bronchitis, broncho-pneumonia, convulsions, epistaxis, subconjunctival or subcutaneous hemorrhage, or sublingual ulceration, and in those children who by virtue of age, the presence of rachitis, scrofula or general debility are predisposed to serious complications and sequelæ.—*Med. Standard.*

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WHAT IS MEERSCHAUM?

Meerschaum is not foam of the sea, as many suppose, but a silicate of magnesia.

The raw material comes from Asia Minor, wherefrom the Turkish government derives a great deal of revenue.

It is extracted much the same way as coal. Near Eski-Shehir, an important station on the Anatolian railway, where rich deposits are found, pits from twenty-five to one hundred and twenty feet deep are dug; as soon as the vein is struck horizontal galleries, sometimes of considerable length, are made.

The stone as extracted is called ham-tash (rough block), and is soft enough to be easily cut with a knife.

It is white and is covered by a red, clayey soil.

The manipulation required before it is ready for export is long and costly.

There is some found in Spain, but it is not suitable, being too full of flaws.

The best quality is called "Spiegel meerschaum" (looking-glass meerschaum, on account of its beautiful luster when colored.)

The first piece of meerschaum was brought into Hungary by a nobleman about the year 1800, who gave it to a cobbler on his estate (who was somewhat of a genius) to carve into a pipe bowl. As he was mending shoes, thereby using wax, some of it got on the bowl, which caused the pipe to color when smoked.

The smoke drawn through the meerschaum, which is porous, settles on the surface, which is a fatty substance—wax.

When a pipe is overheated it evaporates the wax and then the chemical process is lost.

Budapest, the capital of Hungary, became the center of the meerschaum trade, wherefrom it radiated to Vienna and other parts of Europe.

The first meerschaum pipes with short stems (where the amber joins) were made by a Mr. Saltiel, an enterprising young pipe carver of Vienna, and exhibited in London in the year 1855 at the first world's exhibition. The wealthy classes of the entire world, through this, overwhelmed him with so many orders that he found himself too suddenly rich and he became insane.

The first meerschaum pipe made in the United States was carved by Charles Pollak, in New York City, in 1860, from a block which Rev. Dr. Tyng, of Brooklyn, New York, brought from Turkey.

He had learned his trade from his father-in-law in Old Buda.

He imported the raw material in blocks the same year to manufacture it into pipes for the trade, thereby introducing into this country a new industry.

He exhibited at the American Institute in New York an immense and beautifully carved pipe representing Washington and his generals, which attracted a great deal of attention.

The officers of the armies of the Continent employ soldiers and non-commissioned officers to smoke and color their meerschaums for them, and in England there are regular establishments where the nobility and men of means have their meerschaum pipes and cigar-holders colored for a consideration.—Francis Edler in the *Retailers' Journal.*

THE MOSQUITO PLANT.

That mosquitoes are chiefly, if not wholly, instrumental in spreading malarial fever has been definitely decided. The object then at the present time is to devise efficient means of destroying mosquitos, or at any rate of preventing them from reaching human beings so as to be able to bite them. A successful wholesale destruction of the disease-bearing insects can hardly be looked for, although in the vicinity of towns much can be effected in this direction. Measures designed to keep mosquitoes out of dwellings and to protect the exposed portions of the person when abroad, will be the principal means of defence for some time to come. There has recently been an interesting correspondence in the *London Times,* regarding a plant which is said to have the property of quickly ridding a district of mosquitoes. Sir George Birdwood, a recognized authority on botany, says that this plant and allied basils have been known from time immemorial throughout India, as a defence against mosquitoes and a prophylactic in malarial districts. He instances some striking examples that came under his own notice of the manner in which this plant acted as extirpator of mosquitoes. Capt. H. D. Larymore, writing from Northern Nigeria, Africa, gives similar testimony with regard to the plant. He says, "I can personally testify to the extraordinary effect produced on mosquitoes by the pleasant odor of the fresh leaves of the 'mosquito plant' (Ocimum viride), and by placing two or three pots containing growing plants in each room and along the windward veranda, a house can be kept practically free from the insects. One of the malaria-giving specimens which I caught alive and tenderly inclosed within a leaf of the plant lost consciousness in a few seconds." If this plant really has such a magical effect upon mosquitoes as is ascribed to it, it is assuredly deserving of the attention of those directly interested in the extirpation of the insects. It certainly would not be amiss if the "mosquito plant" were given a trial in certain districts of the United States.—*Med. Record.*

CLEANING COMPOUNDS.

A subscriber asks us to give him a recipe for a good cleaning compound. We take the following from the *Bulletin of Pharmacy:*

I.

H. G. H.—The following formula will result in a good, all-around cleaning liquid:

Spirit of ammonia	12 fluidrachms.
Oil of turpentine	10 fluidrachms.
Ether	12 fluidrachms.
Oil of lavender flowers	1 fluidrachm.
Alcohol	27 fluidounces.

It may be said, however, that no such single preparation will clean everything uniformly well. Specific agents are often needed for stains of a particular nature.

II.

Dissolve 12 parts of soap in 20 parts of boiling water, and, after cooling somewhat, add 3 parts of strongest ammonia water. Stir, and add, little by little, sufficient deodorized benzin to make 100 parts.

The best results are had by using soap containing an excess of alkali.

III.

Common soap (shavings)	2 ounces.
Potassium carbonate (crude)	1 ounce.
Powdered borax	1 ounce.
Ammonia water	2 fluidounces.
Water	to make 1 pint.

Heat the water to boiling, digest in it the soap, then add the borax and potassium carbonate, agitate until dissolved, and strain; when cool add the ammonia water and cork well.

IV.

Extract of quillaia	1 ounce.
Borax	1 ounce.
Ox-gall (fresh)	4 ounces.
Tallow soap	15 ounces.

Triturate the borax with the extract of quillaia and afterward with the ox-gall, which will cause at least partial solution. Then thoroughly incorporate with it the soap so as to produce a plastic mass, which may be molded into sticks or put into boxes.

To these we may add:

V.

Benzine and ordinary gasoline are effective in removing grease as well as varnish, pitch and other substances which are soluble in them.

VI.

Equal parts of alcohol and ammonia make an excellent cleaning fluid for removing many stains as well as grease and other substances.

* *

GENIUS AND IMPOTENCE.

It is no secret that men of genius are often lacking in the sexual instincts. The life of many a master mind has been darkened by the disturbing influence of marriage, and not a few of those destined to serve their day and generation as pilots of mankind have suffered shipwreck and themselves become castaways because they voyaged without the ballast called love. In a former issue we dealt with Sir James Crichton-Browne's serious reflections on the part played by Mrs. Carlyle in the quarrels which, lamentable as the matter is, can now be cloaked no longer. In fairness to truth and in the interests of psychological medicine it is well that the "New Letters and Memorials of Jane Welsh Carlyle" should have been quickly followed by the publication of the long-secreted and painful manuscript left by James Anthony Froude, "My Relations with Carlyle." In this little volume there is clear evidence as to the etiology of Mrs. Carlyle's suffering. Medical men may well study the record with care. Every practitioner probably, to some extent, is aware of the misery wrought by unsatisfied love, but when two lives like those of Thomas Carlyle and Jane Welsh are linked and yet remain ever separate, derangement and disaster are inevitable. No secrecy is now possible. In justice to both it is well that the truth should be known. "Their marriage was not a real marriage, and was only companionship." "Carlyle was one of those persons who ought never to have married." "In 1862 her health finally broke down, and there came on that strange illness of hers which doctors failed to understand, or, if they understood it, they did not venture to speak plainly. . . . The wisest of her doctors insisted as a first necessity on her separation from him." All this and more needs no interpretation to medical minds. The diagnosis is made clear. It may be our hero worship will lose something of its useless glamour, but our pity will be extended, and science and sentiment will unite in drawing that cloak of charity which covers a multitude of sins over the pain and anguish which darkened the lives of the Carlyles. The pathos of the tragedy is not to be forgotten in the study of its pathological features.—*Med. Press and Circular.*

* *

New Solar Theory.—"What supports the sun in the heavens?" asked the country school teacher.

"Why, its beams, of course," replied a precocious youngster.—*Exch.*

BRAIN WEIGHT IN RELATION TO OCCUPATIONS.

The convolution-forming capacity of the cerebrum is well known to be in direct proportion to the position in the animal scale of its owner. Anti-evolutionists view with disfavor the development of fresh convolutions in the brains of apes as the result of the acquirement of new acts and habits, though they are willing enough to believe that the process takes place in their own mental organs. It is only natural, therefore, to find that the more highly specialized the human mind becomes through education and scientific training, the more intricate and crowded with nerve-cells is the cortex cerebri found. Dr. H. Matiegka, in his work on "Brain Weight and Cranial Capacity," adduces some most interesting facts bearing upon this relation. Thus, the weight of the brains of those day-laborers who are incapable of learning a trade or remaining in steady employment averaged 1,410 grammes. The brains of those workmen with greater intelligence and responsibilities, such as porters and watchmen, rose to 1,449 grammes, while in the highest class of all, men of marked mental abilities, scholars and physicians, the average brain weight was 1,500 grammes. It was also observed that among the laboring classes, those engaged in manual labor have heavier brains than those employed in more sedentary or unhealthy work. It would appear that alcoholics have a very low average of brain weight.—*Med. Press and Circular.*

* *

THE ENERGY OF GROWTH.

Some time ago Springer (*La Semaine Med.*) presented to the Académie de Medecine his observations on the fundamental needs of the organism for the production of animal tissue. These he resolved into the lecithins, water and potash, and conceded electricity to be the product of these substances, whose energy becomes, through electric action, convertible into the production of living tissues from living tissues.

These observations he has since verified (*Revue Inter. de Ther. Phy.,* April 15, 1903) to be at the basis of all growth, vegetable as well as animal, in which two classes growth is likewise dependent upon processes of oxidation.

Oxidation processes do not occur in living tissues without the intervention and expenditure of electricity. Thus the growth of plants can be augumented by proper electrification, and the growth of plants can be inhibited by circumventing the normal supply of electricity to them, by surrounding them with a row of conductors intensely sensitized to absorb atmospheric electricity.

As to the use of electricity clinically, Springer recommends the faradic current. He has produced an increase in the weight and length of the long bones in children and animals by electrification of the epiphyses. This fact being demonstrated by the disproportion established between the long bones of opposite limbs in the same animal. The identical result has been obtained in faradic electrification of muscle tissue.

Thirdly there occurs in properly Franklinized subjects a notable increase in body weight.

The electrogenesis of growth in plants is interesting from a view-point bacteriologic, and presents a field that will require further elaboration.

It seems that the electricity native to the body is not the same sort of energy that is produced by our dynamos and chemical contrivances, and although the attempt at the isolation and recognition of the animal form has been futile, we have reasonable expectations that it will yet be accomplished. If Springer's experiment becomes indeed recognized the above supposition will be proven false. This would not advance us much.—*St. Louis Courier of Medicine.*

* *

THE CORRECTION OF BOWLEGS.

The writer considers the treatment of bowlegs, due to rickets, particularly those that occur during infantile or adolescent life. Proper treatment of rachitis during its early stages will prevent the bony deformities, such as bowlegs. Spontaneous recovery in cases of bowlegs is possible, when the general condition of the patient undergoes marked improvement, resulting in lengthening the bones and strengthening the muscles attached to them; but in the writer's experience this is very rare. If the patient is under four years of age, so that the bones are still soft, the deformity of bowlegs may be relieved by the wearing of apparatus and treatment with manipulation and massage.

In cases in which such treatment fails or in patients over four years of age operation may be necessary. This may be either osteotomy or osteoclasis. The writer prefers the former. In very young children the deformity may be corrected with the hands alone, without the use of instruments, a green-stick fracture being produced.

After the deformity has been corrected by surgical means, it is best to supply the child with apparatus for a year, so that the bones become firmly united and the deformity does not recur.—*Arch. of Pediatrics.*

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GOLF.

"I want your advice," said one of his parishioners to a well known golf rector.

"Yes, dear friend," replied the reverend gentleman; "and on what subject?"

"I've taken to playing golf," replied the other, "and—er—find it difficult to restrain —er—"

"Ah, I see what you mean," said the rector; "bad language."

"Exactly."

"Well, how would it be to put a stone in your pocket every time you found yourself using a wrong word, just as a reminder, you know?"

"The very thing!" exclaimed the parishioner. "Thank you so much." And so they parted.

A few days later the worthy cleric was passing along the road which led to the links, when he met an individual whose clothes stuck out all over with great knobby lumps.

"Gracious me, my dear friend," he cried, as the object approached nearer, "is that really you?"

"Yes, it's me," grunted the voice of the seeker after advice.

"Why, you don't mean—surely, all those are not the result of my suggestion?" continued the horrified rector, gazing at the tell-tale bulges.

"These," snorted the other, contemptuously; "why, these are only 'dashits.' The others are coming along in a wheelbarrow." —*Iowa Med. Jour.*

⚜ ⚜

GENERAL MASSAGE WITH THE INUNCTION OF COD-LIVER OIL.

E. J. Kempf reports a case of complete recovery from acute tuberculosis by means of general massage with the inunction of cod-liver oil. The second case was that of a girl suffering from spontaneous dislocation of both knees, who was pale, emaciated, weak and loose-jointed. She had a slight hacking cough and there was an exaggerated respiratory murmur over both lungs. There was the history of pulmonary tuberculosis in the family. After six months of systematic treatment by massage with cod-liver and olive oil, the patient made a perfect recovery. In a third case of a girl suffering from hystero-epileptic attacks following several bites from a dog, recovery ensued after massage with cod-liver oil.—*Med. Standard.*

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AD INFINITUM.

Dr. Dempwolff, of Berlin, announces that he found an aquatic insect which preys upon the anopheles mosquito. He is cultivating the creature artificially, with the expectation of destroying the mosquito and the host of germs which inhabit the body.

They've found the bug
That eats the bug
That fights the bug
That bites us;
They've traced the germ
That kills the germ
That chews the germ
That smites us.

They know the bug
That knifes the bug
That stabs the bug
That jabs us;
They've seen the germ
That hates the germ
That biffs the germ
That nabs us.

They've struck the bug
That slays the bug
That flays the bug
That sticks us;
They've jailed the germ
That guides the germ
That taught the germ
To fix us.

But still these bugs—
Microbic thugs—
In spite of drugs
Combat us;
And still these germs—
Described in terms
Inspiring squirms—
Get at us!

—W. D. Neseit, *in Life.*

THE KINDLY EMERSON.

Emerson was kindly even when absent-minded. It is reported that one hot day Dr. Holmes was standing at a street corner in Boston, holding his hat in one hand and mopping his brow with the other. Emerson came along and seeing an old man with hat outstretched, dropped a quarter in it and walked on without recognizing the genial Autocrat. It is not said that Holmes enjoyed the situation or that he spent the quarter for lemons; but he probably did both.

* *

A SAD CASE.

A green little boy in a green little way
A green little apple devoured one day,
And the green little grasses now tenderly wave
O'er the green little apple boy's green little grave.

—*Current Literature.*

* *

"Do hogs pay?" asks a farmers' journal. Lamphear, the inimitable, who spells "kissed" *"kist,"* says that in his experience they do not; that they take a medical journal about five years without paying for it, and then return a copy to the publisher marked "refused." We have had some experience of that kind. No, hogs don't pay. —*Med. World.*

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. PATCHEN, M.D.

OPERATIONS FOR RECTAL PROLAPSE.

"THE number of operations devised and practised for the cure of rectal prolapse is in itself a sufficient demonstration of the fact that no single measure has as yet proven itself so simple, safe and radically curative that it can be accepted as the proper treatment by the profession at large.

"In those cases of moderate severity occurring in infants and young children, probably the standard operative treatment, after all the various well recognized therapeutic and hygienic measures have failed, consists in linear cauterization with the Paquelin or with nitric acid, a treatment certainly safe and often efficacious.

"A procedure followed by Thiersch consists in the insertion of a silver wire ring into the sphincter. He has employed it not only for the cure of infantile prolapse, but also for the relief of the large and inveterate procidentias observed in older people. The method of choice, however, for inveterate prolapse of the aged or debilitated seems to be some form of pelvic or abdominal suspension. The pelvic operation consists in fixing the posterior surface of the rectum to the sacrococcygeal curve, and may be accomplished through an opening made at the tip of the coccyx. It is open to the objection that only the posterior wall of the gut is held up; the anterior, which is commonly forced down by the weight of the abdominal viscera, receiving little or no support. Ventrofixation consists in securing the bowel to the abdominal wall. The abdominal incision may be made either in the middle line or to the outer side of the left rectus muscle. The sigmoid or rectum is drawn up and secured to the parietal peritoneum with half a dozen chromicized catgut sutures.

"Sonnenschein (*Centralblatt für Chirurgie,* No. 44, 1902) holds that a predisposing factor of great moment in many cases of procidentia, particularly in those characterized by infantilism, is to be found in a very deep Douglas pouch. He successfully cured an inveterate case occurring in a girl of seventeen, by opening the abdominal cavity and performing a vesico-ventral fixation, obliterating Douglas's cul-de-sac with a series of sutures, and fastening the loops of the sigmoid obliquely across the lateral and posterior pelvic walls with stitches which grasped the surface of the bowel and the parietal peritoneum and the underlying periosteum of the sacrum and the sacral iliac juncture. The two arms of the U-shaped loop of sigmoid resulting from this fixation were secured in apposition by stitching their epiploic appendages. This was done to avoid the danger of subsequent strangulation. For the relief of the slight remaining mucous prolapse a submucous silver wire ring was inserted around the anal orifice.

"The broad fixation of the sigmoid or rectum to the posterior pelvic wall, and the partial or complete obliteration of the Douglas cul-de-sac, commend themselves as serviceable measures in suitable cases. Experiments on animals have shown that peritoneal adhesions are very likely to be drawn out into bands or strings, and hence it is advisable to make the adhesions as broad as practicable.

"The amputation treatment for prolapse has been many times successfully employed, and though it has been attended by some mortality it is likely to remain an operation of choice. In some cases it is unnecessary to divide all the coats of the bowel, the removal of a band of redundant mucous membrane, with apposition of the cut surfaces with sutures, being sufficient. Usually the entire thickness of the bowel must be removed, endangering or wounding the small intestine, which is likely to be found in the prolapse."

This article, which was considered of so much importance as to be given a leading position in a recent issue of the *Therapeutic Gazette,* is reproduced in this department for the purpose of friendly discussion and criticism.

Criticism, however, is not directed against either the subject matter or its manner of presentation. As an effort to set forth, in a clear and succinct manner, the remedial resources of surgery—the different methods it has at command for the cure of a serious, annoying, and, according to the experience of the general practitioner, an obstinate, if not, indeed, in certain instances, an incurable disease—it is worthy of all commendation; it could hardly be better done.

But we *do* have something to say about the point of view from which the condition is considered, and the unscientific nature of the remedial measures it has to offer. Having had the *beam* taken from our own eyes, we wish to remove the *mote* that is in our brother surgeons' eyes that they may clearly see not only the error of their therapeutic ways, but learn of a much better and more satisfactory method to use in the place of them. It is a fundamental principle of therapeutics that diseases cannot exist independently of their causes or predisposing conditions, and that the best remedy—the one always to be preferred—is the one which will remove these causes in the most prompt, safe and reliable manner.

Since the remedies surgery has to offer are, for the most part, directed to the effects instead of the causes of disease, the therapeutic field in which they can be legitimately employed is a rather limited one. While, within this field, they are always reliable, prompt and highly—often dramatically—effective, outside of it they are irrelevant, ineffective and, very frequently, even dangerous.

Functional diseases, whose causes are usualy more or less remote from the part affected, are clearly outside of surgical therapeutics, yet, in spite of this fact, there are not a few ambitious surgeons who delude both themselves and many of their associates in general practice, into the belief that affections of this class can be radically and permanently cured by removing the part or organ in which the disorder finds expression. A more serious mistake is hardly possible. It is true that, as a result of such a "cure," the local symptoms from which the patient sought relief will disappear never to return, but this is because the only tissues in which they can manifest themselves have been destroyed. The causes of the disease have not been removed, nor even disturbed, and, as a consequence of their uninterrupted activity, derangement of some other function or organ will, sooner or later, inevitably occur.

But the most serious feature of this therapeutic tragedy is that, when this inevitable result does occur, whether it manifests itself near to, or remote from, the seat of the antecedent affection, it will be looked upon by both patient and physician as an entirely new disease and treated as such.

The rectum is a favorite arena for the exploitation of cures of this kind for the reason that the essential causes of the diseases which affect it are often so remote and obscure that their existence is either unsuspected or ignored. All remedial effort is, therefore, directed against manifestations and conditions which, from their intimate association with the local symptoms, are mistakenly supposed to be the cause of them. Skilful use of the knife often removes both the annoying symptoms and the possibility of their return. The patient is relieved and the surgeon is satisfied; what more is necessary or to be desired?

The idea that, although their effects have been removed, the causes which produced them are still perniciously active and as capable as ever of producing both functional and organic changes which may invade some other more vital part with more serious, and even fatal, consequences, seems farthest from the surgeon's thoughts. Yet such a deplorable result is not only possible but highly probable and must frequently occur. In view of the similar degree of vascularity that exists in both the brain and the rectum, and the fact that neither organ has direct control over its own circulation, it would be interesting to know how many who annually die from apoplexy or suffer from the disabling effects of a lesser degree of cerebral hemorrhage have a history of having undergone a surgical operation for the cure of piles.

Returning from this digression to the article under discussion, we note that the author presents no less than six different surgical methods for the cure of rectal prolapse, and with them this frank statement to account for their frequent individual failure:

"The number of operations devised and practical for the cure of rectal prolapse is in itself a sufficient demonstration of the fact that no single measure has as yet proven itself so simple, safe and radically curative that it can be accepted as the proper treatment by the profession at large."

While infallibility is no more to be expected of surgical than of other methods of treatment, it will be found that each of them will approach it just in the proportion that it is addressed to and removes the causes of the diseased conditions it undertakes to treat. It is because surgical methods fail to comply with this necessary condition which the law of cure imposes that their results are so frequently disappointing.

Rectal prolapse is a functional disease. Its primary, essential cause does not reside in the rectum itself but in its environment. It is the same as that which produces prolapsus of any of the abdominal and pelvic viscera, namely, *diminished action and power of the rhythmic, lifting force exerted by the diaphragm and anterior muscles of the abdomen as they co-operatively engage in the act of breathing.*

When, as happens at each inspiration, the expansive diaphragm descends from one to three inches, it pushes out the abdominal walls and causes compression and downward displacement of all of the organs beneath it. At the succeeding expiration the diaphragm rises simultaneously with contraction of the abdominal walls, thereby returning the organs to their original position.

All surgeons are aware of the existence of these respiratory excursions of the diaphragm, but few seem to realize their significant importance. Their primary effect is, of course, to expand the thorax and allow the lungs to become filled with air. But, owing to the position and anatomical relations of the diaphragm, its respiratory motions produce another effect hardly less important. This is the aspirating and elevating force it exerts upon all of the abdominal and pelvic contents.

In its action the diaphragm is almost identical with that of the piston of a pump, the difference being the elastic and yielding closure in which the former works. This difference, however, is decidedly favorable to the action of the diaphragm and increases its efficiency; for, simultaneously with its ascent and closely following it, the abdominal walls gradually contract, from below upwards, by which action the lifting force is very much increased.

The fluids are the first to yield obedience to this tractive influence, and especially is this the case with those forming the contents of the large vessels which pass into and through the most active part of the field of its operation—the region nearest its initial point of action—just where the vessels are the heaviest. But the effect of this lifting force is not limited to the fluids alone, it includes the entire abdominal mass, and, since the abdominal and pelvic cavities are practically one, even the rectum is not omitted. It causes a strong oscillatory motion, in a vertical direction, of each and every part and organ, irrespective of their individual functions, as may be readily verified by inspection of the perineum and by observing the changes of form and dimensions of the abdomen which regularly occur at every respiration, or, more convincingly still, by placing the hand upon the abdomen, when the motion referred to may be distinctly felt.

Respiratory rhythm is the only means provided by nature for overcoming the baneful influence of gravitation which, if unopposed, would compel the abdominal and pelvic viscera to settle down upon each other, at the lowest possible plane, in a compact, immovable mass, prevented by their own weight and pressure from performing those important duties upon which the nutrition and health of the body depend.

Those who may demand further proof that respiratory rhythm is the dominant force which sustains the abdominal and pelvic contents in their normal position and proper relation to each other, are referred to Dr. Gaillard Thomas's "Diseases of Women," edition of 1880, page 368, and more particularly to Dr. George H. Taylor's book, "Pelvic and Hernial Therapeutics," which is entirely devoted to the elucidation of this mechanico-physiological fact.

If, then, in the language of Dr. Thomas, "the retentive power of the abdomen," or, as stated by Dr. Taylor, "the lifting force exerted by the diaphragm and abdominal muscles in the act of respiration," is the all-pervading and all-controlling factor of sustentation of the abdominal and pelvic viscera, it must follow that a greater or less decline of this power is the primary cause of any degree of prolapsus of the same. There may be and often are other contributory causes, but as long as this one essential cause remains operative, the removal of the others, however skilfully and successfully accomplished, will result only in palliation.

But how, it may be asked, is it possible for defective respiratory rhythm to be restored? Simply by cultivation. These spontaneous organic motions are as subject to augmentation as they are to restriction. The amount of latent power in the system which, by cultivation, can be utilized for this purpose is far in excess of that normally required. Practically two things are necessary. First, to provide more space in the upper region of the abdomen for the crowded and depressed organs; and second, to restore the fluctuating space and respiratory rhythm to its normal position and degree of power. These desirable results can soon be secured by the habitual use of certain physical processes or "movements" which will enlarge the area of the trunk at the region of the diaphragm, diminish the area at its lower portion, and strengthen the diaphragm and abdominal muscles. There are many kinetic processes or "movements" which contribute to this effect, and a careful selection of such of them as are suitable to the patient's condition otherwise, changing and modifying them from time to time as the improvement may render necessary, will not be disappointing.

Cases of rectal prolapse which, as very frequently happens, are unaccompanied by any troublesome degree of inflammation, may be radically and permanently cured by the following process alone: Lying face downward upon a rug or hard mattress, with the elbows, toes and front part of the body resting on the support, the arms perpendicular, parallel with each other, and at right angles with the body, the legs extended and feet close together, the trunk is made to assume a straight horizontal position, the only support being that of the toes and elbows. After keeping this position a few moments (the time being determined by the patient feeling a slight sense of fatigue), the body is allowed to descend to its original position. This "movement" should be repeated from three to six times with suitable intervals of repose.

This process causes a powerful contraction of the anterior muscles of the abdomen and compels all respiratory effort to be performed by the diaphragm. All of the organs beneath the diaphragm are elevated from one to three inches during each expiration, and the prolapsed and protruding portion of the rectum is as effectually *lifted* into its normal position as though it had been pulled up by a hand reaching down from above. By daily repetition, this temporary effect soon becomes permanent. Should congestion or inflammation coexist, some of the numerous and effective kinesipathic processes for equalizing the circulation must form a part of the prescription.

So far as is known, the late Dr. George H. Taylor was the first to conceive the idea that the force exerted by respiratory rhythm might be cultivated and used for remedial purposes, and, after convincing evidence that such was the case, to devise suitable means for its effective application.

A severe case of prolapsus ani had for a long time baffled his best-directed efforts at either relief or cure, as, indeed, it had those of several physicians previously. For the purpose of more thoroughly studying the case and with the hope of producing some palliation by a soothing local application, the patient was placed horizontally, face downward, upon a couch. While the patient was in this position it suddenly occurred to the doctor to observe what effect upon the local infirmity would result from a strong contraction of the lower part of the abdomen with a simultaneous expansion of the upper or diaphragmatic portion. Accordingly the patient was directed to rest the elbows on the couch, "the arms perpendicular and supporting the upper portion of the trunk, the ankles strongly flexed, the toes, like the elbows, resting firmly on the couch." The patient was then asked to extend the legs, straighten the knees, and raise the anterior part of the body until no part touched the couch except the elbow and toes.

With a little assistance this position assumed, and then, says the doctor, "I had the supreme satisfaction of *seeing* the result. The protruding, swollen and very tender part instantly slipped in and wholly disappeared." The patient received instructions about the daily practice of this and a few other "movements," and in a correspondingly short time was discharged cured and remained so.

A very important feature of the curative methods here advanced is that they can be readily and successfully employed in the case of children, even in those of a very tender age. The necessary processes will prove as effective when given by an intelligent mother or nurse as when administered by the family physician himself.

The principal and often the only process required will be described in Dr. Taylor's own words taken from his book "Health for Women":

"Children of weakly and especially of strumous habits are more liable to the symptoms (of prolapsus ani) above described than men; and since the cure is very rapid, simple and complete, I will describe the process. Children do not object to any process that involves exercise applied to them, and they make excellent patients for this treatment.

"To cause the prolapsed bowels of a child to recede to their place, the mother or nurse should lay the child across her lap, face downward. Then she may separate her knees so that the breast shall rest upon one knee and the legs upon the other, in the meanwhile placing one hand upon the abdomen and the other (opposite) upon the back. Now press with both hands, but more with the *upper* hand, which will cause the body of the child to bend, or become curved, downwards; next, move with the hand placed *under* the body, so as to cause the body to be in line (horizontal). At every alternate pressure of either hand the child is directed to straighten itself, with which action of the child the mother should so cooperate as to make it more complete and effective. This action may be repeated three or four times. The extruded bowel will return to its place as the direct result of the operation. To maintain and render permanent the advantage thus easily secured, it is necessary to repeat the movements two or three times daily. The abdomen should also receive a thorough kneading by the hand while the child is lying either face or back downward (first position preferable.)"

To many the very simplicity of kinesipathic methods will prove a bar to the investigation of their broad and positive claims, but it should be remembered that simplicity is a characteristic feature of all of Nature's most powerful and effective processes.

But in spite of prejudice or disbelief a fair and impartial trial is all that is necessary to convince any one of their superior efficacy. They will be found to be relevant to cases of every form and variety; prompt, safe and reliable in their action; adapted to all ages and to degrees of disability, and, in short, to possess every necessary qualification of an ideal remedy.

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TREATMENT OF ECZEMA OF THE SCALP.

Parker pleads for more patience and perseverance in the treatment of this troublesome affection. So many physicians prescribe time or pronounce the condition hopeless that parents often discredit the physician who promises recovery within a reasonable time. The first measure in successful treatment is a thorough washing and shaving of the head. Castile soap and much water of a temperature not less than 100° F. should be used. The same water should not touch the head twice, and pledgets of absorbent cotton are to be used to remove the crusts. When cleansed the head should be dried with a clean soft towel. During treatment the pillow-case should be consigned to the wash-tub each morning and a clean one put in its place. These are not over-particular but imperative details, if favorable results are desired. Jugglery in prescriptions cannot avail, and rigid hygienic measures, extending to all the surroundings, must accompany medical treatment. The second step is in the case of nursing infants to treat the morbid constitutional condition, generally found in the mother. The alterative, iodia, is nearly always applicable, and in severe cases should be administered to both mother and child. If the irritability attending the eruption requires special treatment, bromidia should be given. Some children will require an easily assimilated iron tonic. The bowels must be kept open with a mild aperient given in the early morning. Locally, boroglycerid is the best ointment. Ecthol is also a remedy of much value, being a powerful corrector of depraved conditions in fluids and tissues. It is employed diluted, according to the severity of the case, and sprinkled upon a thin cap of surgeon's cotton. The cap should be renewed and the old one burned daily.

—*Medical News.*

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TOO LATE.

By Ninette M. Lowater.

Too late! The words come sounding down the ages,
Filled with the burden of all human life;
Too late to turn Love's open, roseate pages,
Too late to quench the flames of cruel strife.

Too late for friendships, slipped away forever,
For gracious deeds by loving kindness sped;
Ah, happiest of all are they who never
Have cried "Too late!" above the unhearing dead.

Swift moves the hand of Time across the dial!
This hour is thine—thy certain gift from fate;
It has no space for respite or re-trial—
Be thine the boon to find it not too late.

Trained Nurse

THE EVOLUTION OF THE TRAINED NURSE.*

By Hon. Walter T. Merrick,

Philadelphia, Pa.

Young Ladies of the Class of 1903:

I congratulate you on having arrived at this your commencement day. At times it has no doubt seemed so distant, vague, and shadowy that it appeared more like the illusive mirage of the desert than a reality. For three long weary years, with alternating sentiments of hope and fear, you have worked and studied in order that you might participate in these exercises, that you might enter this honorable profession in a creditable manner. It is a day to anticipate—a day of fulfilment and of bright prospects, one that you have looked forward to with eager, longing eyes, and that you will, as long as life lasts, look backward to with tenderest memory.

> "Hope springs eternal in the human breast;
> Man never is but always to be blest."

You have hoped for this event, as the lonely wanderer hopes again to view his native land. Your feet are now planted on the shore. You will look around you for a brief moment, part with old friends and associates, form new ones, and go on hoping, not sentimentally for the unattainable, but for that which you may one and all attain by treading the path of duty and honor—unbounded success in your chosen calling. No sooner has the one hope been realized than another takes its place. So it is and so it should be with those who aspire to the highest position in their professions. Your friends, your teachers, and your alma mater earnestly wish that your future hopes may be realized, even more fully than those you have entertained while acquiring that knowledge which fits you for your heaven-born calling. You are about to receive a diploma that entitles you to assume the duties of a trained nurse. It is a title of honor. As such guard it sacredly and permit no act of yours to tarnish its lustre. To-day you go forth into the world to practise a profession not only noble, but holy. All good women are richly endowed by Nature for your work. To Nature's gift you have added a special study and training to fit you more intelligently to direct the womanly instinct within you.

Let that womanly nature and sympathy be still your safest guide and best teacher. Cultivate it assiduously. You will then, and then only, be able to apply the lessons you have learned here in the most effective manner. Without that gentle inherent sympathy you cannot reach the full measure of success. Nursing is as old as the birth of woman; but for many centuries, like a rough diamond, it lay without polish; but in these later days of progress, science and education have cut and polished it until neither light nor darkness can conceal its scintillating rays. Two hundred and seventy years ago four young women volunteered to concentrate their lives to the relief of distress. Since then hundreds of women from all ranks of life, the rich and the poor, the high and the low, the learned and the unlearned, have followed the pathway they blazed. Such was the origin of the Sisters of Charity. Who can estimate the good those noble women have accomplished during that period? None but Him

> "Who sees with equal eye, as God of all,
> A hero perish or a sparrow fall."

Yet strangely enough the example of these pious women did not awaken the world to the necessity of establishing training schools for nurses, where they could be taught under the eyes of the best physicians and surgeons the most advanced methods of caring for stricken humanity. It was left for a later day and age to do this work.

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* Address to the graduating class of trained nurses of the Medico-Chirurgical Hospital of Philadelphia.

Your profession is one of the youngest and of comparatively recent origin. It may prove interesting to some present to hear something of the history which eventually gave rise to the establishment of your present system for the education of nurses. In 1853 the Czar of Russia determined to exercise a virtual protectorate over the Christian population of Turkey. War was declared and waged between the followers of the cross and the crescent in its most horrid form. England and France for political reasons joined forces with the Turks. This was known as the Crimean War. During this war the British soldiers—improperly fed, clothed, and housed—sickened and died by hundreds. In the hospitals recovery was the exception, not the rule. It was at this time the English government called upon Florence Nightingale, the daughter of an English clergyman, for aid in nursing their soldiers. Before she received the letter containing the request she had already sent one proffering her services to the government. To her was due the establishment of better nursing in the military hospitals.

Not only then, but thereafter, as the historian adds. She organized a band of three hundred women whose labors in that distant land saved hundreds of lives. During this war occurred the famous charge of the Light Brigade at Balaklava, celebrated in song by England's poet-laureate, Alfred Tennyson. It was a splendid charge, a noble theme. Who have not thrilled as they read the story of how

> "Into the jaws of death,
> Into the mouth of Hell
> Rode the six hundred."

But grand and glorious as it was, a nobler theme was at the hand of the great poet, but he saw it not. He might well have sung of the marvellous heroism, daring and self-sacrifice of those noble women who offered their lives to the ravages of disease, who entered those camps of mangled and bleeding men and heroically ministered unto them. But the plaudits of the world in times of war are apt to ring loudest for those who cause, rather than they who relieve, suffering. After the close of the war, when Miss Nightingale returned to England, she was given a great ovation in London, and a subscription of a quarter of a million dollars was raised for her benefit. With characteristic grandeur of character she would not, however, accept it, but requested that it should be devoted to founding an institution to be named "An Institution for the Training, Sustenance, and Protection of Nurses and Hospital Attendants in Connection with St. Thomas's Hospital, London." This was the first English training-school for nurses, and was founded in 1860, and was the direct result of the work of these women in the Crimean War. You cannot claim for your profession a greater antiquity than forty-three years. But, on the other hand, no other profession during that time has shown such material progress.

It was thirteen years later, in 1873, that the first training-school was founded in America in connection with the Bellevue Hospital in New York City. This did not come about as a lesson of the war, but on account of the deplorable condition of the inmates of the hospital. Since that time the sphere of the trained nurse has broadened and widened until to-day she is deemed a necessity in every household in the land containing those suffering from disease and who are able to procure her services.

(*To be continued in the October* GAZETTE.)

* * *

AGAINST FOREIGN NURSES IN NEW JERSEY.

ACCORDING to a strict interpretation of the new state law of New Jersey, enacted for the protection of graduate trained nurses, a large number of nurses who have obtained diplomas in other countries, principally Canada, will be obliged to return the certificates issued to them and take the regular examination provided in such cases. Nurses engaging in their profession in the state were obliged to register in the County Clerk's office in their respective counties prior to July 1 last, and those failing to do so were, according to law, compelled to take an examination.

It has since been discovered that there are many nurses in New Jersey who have been graduated from hospitals in Canada, as well as other countries, and their certificates will not be recognized by New Jersey officials. In Plainfield there are several who are affected by the law, and they are preparing to take the examination. Until they do they will not be allowed to follow their profession. An effort will be made at the next session of the legislature to have the law changed so that an examination will not be necessary for those coming to New Jersey from foreign countries.

QUEER REASONING.

The fundamentals of the woolen underwear theory are stated as follows:

1. Animal wool is a material provided by nature for the clothing of an animal body.

2. Man, therefore, can be clothed naturally and properly only in animal wool.

The tremendousness of the above reasoning is sublime, and can be supplemented as follows:

1. Grass is a material provided by nature for the nourishment of an animal body.

2. Man, therefore, can be nourished naturally or properly only by grass; or, further:

1. A sheep is the only animal wearing wool on its skin.

2. Man, therefore, who wears wool on his skin is a sheep.

Book Reviews.

THE MEDICAL AND SURGICAL USES OF ELECTRICITY, INCLUDING THE X-RAY, FINSEN LIGHT, VIBRATORY THERAPEUTICS AND HIGH FREQUENCY CURRENTS. By A. D. Rockwell, A.M., M.D., with 252 illustrations. New edition. New York, E. B. Treat & Company, 1903.

Dr. Rockwell's name has long been associated with the literature of Therapeutic Electricity; the volume originally issued by himself and his lamented associate, the late Dr. Beard, being the first standard text-book on the subject published in this country. It has remained the leading authority for many years, passing through many editions. Within the past decade such strides have been made in electrical matters that it became necessary to revise and recast the work in order to maintain its reputation as an up-to-date text-book on the subject. Since the advent of the Finsen Light and the X-ray the question of a radical revision became imperative. This has now been done with the painstaking care and thoroughness characteristic of its author. Much that was standard when the volume was originally issued has now become obsolete, and in this revision has been modified or eliminated.

The body of the work, treating of the established principles involved in the manipulation of ordinary galvanic and faradic currents, remains substantially as set down in former editions, as there is no occasion for change. It is in connection with the advances made by D'Arsonval and others in connection with so-called high-tension currents, or modalities, as some authors prefer to call them, and the description of the Roentgen Ray, Finsen Light, Vibratory Therapeutics and High Frequency Currents that the present-day student of electro-therapeutics will be most interested.

On these topics no work can yet be quite satisfactory, for the very good reason that not enough is yet known about them, and the study of them is so rapidly advancing. Conclusions that seemed sound but yesterday have been exploded by to-day's revelations and experiences, and what we feel sure of to-day may be upset to-morrow. But up to the date of going to press Dr. Rockwell has given us all that had been satisfactorily demonstrated.

NERVES IN DISORDER. A PLEA FOR RATIONAL TREATMENT. By Alfred T. Schofield, M.D., etc., Hon. Physician Freidenheim Hospital. New York, Funk & Wagnalls Company; London, Hodder & Stoughton, 1903.

Dr. Schofield is not without fame as a scientific and medical writer. Some of our readers will recall his work on "The Unconscious Mind," and another volume, "Springs of Character," which were well received. The volume before us is of more immediate importance because it treats of a phase of life that is becoming more than merely common; it is, at least in America, already a national characteristic.

As was said in this column in a review of Dr. Lincoln's work, "Sanity of Mind," most people are on the verge of insanity, and they reach this condition strictly through nerve-rack and nerve-wreck. Dr. Schofield analyzes the nature of this growing and prevailing condition, and points out rational methods of avoiding it in advance, and of curing it when it has been incurred.

Each of Dr. Schofield's previous works has been full of suggestive material quite as well adapted to the needs of the intelligent layman as of the practising physician. His style is fluent, perspicuous and fairly fascinating, yet so plain and free from technicalities as to be readily understood by the lay reader.

He begins with a vigorous insistence of the fact that functional nervous diseases are not sham diseases but are definitely and painfully real, and that a disease of the imagination is not by any means an imaginary disease.

On this subject the broadest misconception is prevalent. Even medical men, who should know better, have fallen into the habit of branding a majority of those who suffer from functional nervous diseases as hypochondriacs or malingerees.

The author "justifies" his adaptation of the work to the understanding of lay readers by the assertion that while "as a rule medical works are for medical men, . . . when it appears possible to lessen and often to end much needless pain inflicted on these [nervous] sufferers, and at the same time to inspire hope by pointing out common-sense lines of treatment it is manifest that an exception must be made."

Chapter I. discusses Functional Nervous Disorders.

The author finds that these disorders abound in all parts of the world, "but are said to be least numerous in Germany, Russia, Italy and Spain, more numerous in France, more so still in England, and most of all so in the United States."

This may be a libel based on the exaggerated reports of foreign observers who undertake to "do" this country in a few weeks spent in the hurly burly of New York or the nervous tension of Boston, but it is probably not far from the truth.

Dr. Schofield plants himself squarely, at the outset, on this postulate, that "The diseases grouped under the head of nervousness, hysteria, etc., are real in origin and effects, and formidable in their results; and it is high time that the ridicule, the offspring of ignorance, with which they have been so long surrounded be entirely done away with."

A wise physician once said to him: "If a man is so ill as to say he is ill when he is not ill, he must be very ill indeed."

And he does not hesitate to assert that "a nervous invalid is a far greater sufferer than a man with a broken leg; but with a would-be sapient but truly asinine nod we are content to dismiss the former as 'only hysterical.'"

Such patients are almost universally treated as frauds, are told that they could avoid their sufferings if they would, or that it is all imaginary, etc. The case is cited of one who had been thus treated and who, on entering a physician's consulting room "burst into an agony of tears and exclaimed, 'Oh, doctor! do you think I am shamming?'"

The god of the period is money, and it is now no longer a reward of muscular expenditure. It is nearly all paid for in nerve force and nerve tissue. Hence the multi-millionaire is invariably a misanthrope from nerve break-down. He is ready to offer a million for a new pair of optic nerves, or for adequate reinforcement of his pneumogastric, or for a restoration of defunct hair follicles.

In the popular and to some extent in the professional conception, hysteria is synonymous with fraud and shamming. It is generally held to be an imaginary disease, which is quite different from a disease of the imagination. The latter is recognized, and in the language of our author, "only differs from a disease of the lungs in being more obscure and difficult to treat."

And while it is so-called "nervous" people who have diseases of the imagination as well as imaginary diseases, which they only *think* they have, Dr. Schofield does not hesitate to say that "nervous people are the salt of the earth. It is the nervous men that rule the world, not lymphatic vegetables."

On page 94 Dr. Morrison, president of the Esculapian Society, is quoted to this effect, and with this quotation we will take leave of this earnest, important and valuable little work:

"We often do less than half our duty in not exploring the mental life of the patient. . . . A good deal has been written on prolonged vascular tension due to physical causes. Is there no such state as prolonged mental tension due to moral causes? . . . . In such cases if the physician is to be of any service to his patient, it must be by the agency of mind on mind; and this takes us out of the vestibule littered with microscopes, crucibles and retorts into that inner chamber—the holy of holies in the life of a physician and his patients—where heart and mind are laid bare to the sympathetic gaze of a fellow-man whose discretion may be relied on, and who may from his training in the knowledge of the human soul as well as the human body be able to cure his brother of a most disturbing factor in his life beyond the reach of the advanced therapeutics of a purely physical kind."

THE WILL TO BE WELL. By Charles Brodie Patterson. Second edition. New York. The Alliance Publishing Company, 1902.

It has passed into a proverb of proverbs that there is nothing new under the sun, yet here is an author with the audacity and presumption to devote two hundred fair pages to a discourse on the "New Thought." How can there be any new thoughts? Didn't Moses and David and Solomon and Jesus and Paul think out all that can be thought out of human life, of human duty and superhuman theology? Didn't Socrates and Epictetus, Aristotle and Marcus Aurelius thrash philosophy and morals until there is nothing but straw and chaff left outside their gleanings? Haven't Homer and Shakespeare and Tennyson, Whittier and Walt Whitman sung all the songs that ever can be set to music, in all the keys that can ever be made to vibrate?

What has our oracle to offer that has not already been served?

Imprimis, he urges the unity of all life, the one-ness of all matter and all force, regardless of the fact that of the billions and billions of blades of grass that grow and bloom and wither and die annually, never yet, since time began, have two mate blades been found.

Following his "new thought" vein, he insists that God is in all life, evil life and good life, angel life and devil life. Well, Carlyle and Emerson and Minot Savage and—yes, Mrs. Eddy—have said it even more tersely and emphatically.

God judges each soul, yet each soul is a part of God; therefore God judges Himself. God is working within every soul, yet every soul goes on stumbling and "wandering." How can God so far get away from Himself!

Talk about miracles and mysteries, here is one that makes all the records of miracles read like nursery tales.

But this is a digression, just as the full sixty or seventy pages of the book before us are a wandering prelude and preface and prologue and premonition leading logically if a little vaguely up to the vital subject. We say "vital" premeditatedly, since to be well is equivalent to being in a present and perpetual paradise. No fame can be lofty enough and no fortune grand enough to buy health or to take the place of it. Its value cannot be indicated in figures even if the space from horizon to horizon were filled.

On the sixty-ninth page our author has really found his subject. He introduces it with the quotation: "Our thoughts are the text; our lives are the sermon." And then he launches the assertion that to-day health is being sought "along mental and psychical lines" more than at any previous hour of the world's history. Medical men are trying to both ignore the fact and to combat it, but are not succeeding in either direction.

He finds evidence of progress in this fact and in the other fact—that is, it is asserted by him as a fact—that very many people who formerly took regular doses of "mental" or "science" healing are now beginning to rely on self-healing. It is, in fact, a system of autotherapy that he claims is coming in vogue.

But let us quote some detached sentences at random:

"Intelligent physicians everywhere are dispensing more and more with the use of drugs, and are confining themselves to the giving of advice as to diet and the making of hygienic suggestions."

"We have a right to regulate our own health. We all have the power, but unfortunately we do not always use it intelligently. In order to control and direct the power of life we must focus our attention upon it in the natural way and not imagine that, if ill, five or ten minutes' effort will make us well and strong. The age of miracles has not yet arrived."

* * * * * * *

"A great many people suppose they are *thinking* when they are really doing nothing of the kind, but are using their brains to such a degree that an undue amount of blood is drawn to the head, where, becoming congested, it accelerates the vibrations of the upper portion of the body till the head is very hot and the feet are very cold. . . . Right thinking never yet caused a congestion of any kind. Right thought cannot produce a rapidity of vibration that will result in an overheated head. . . . No one can produce in us a wrong method of thinking unless we allow him to do it. . . .

"Let this optimistic Christ-religion show man that God does not afflict him, but that all the evils of human life are occasioned by his own wrongdoing. . . . All life is of the One life; man has no existence apart from the One life; all intelligence is One intelligence." . . . (Yet it seems to play idiot and go truant more than half the time!) . . .

"We have experimented year after year, trying first one thing and then another; or we have been careful about diet, or studied the laws of hygiene, . . . yet how few have been able to express perfect health and strength!" . . .

"There is another realm to which we have access—the world of the invisible, the world of cause, the world of the soul." . . .

"The spirit is the quickening power, not the flesh. . . . There is no other force or power in the world than spirit. . . . If the spirit dominates his life and he realizes his God-mind power and trusts absolutely to it, enlightenment and guidance will come through the indwelling spirit and he will express mental and physical health and strength. . . . Body is the outgrowth of mind. . . . God is spirit, not *a* spirit, as generally translated. . . . The true action of will in man is one with all will. . . . Error is to be overcome not by denying that it exists, but by affirming the existence and power of the eternal truths. Darkness is to be overcome by letting in the light, not by saying there is no darkness." (This is a bad black-eye to Christian Science!)

". . . . Many healers find it difficult to get true concentration—a faculty needed in treatment to a very marked degree. . . . We first image in mind the condition [health] which we desire to see expressed in the patient. . . . All that is necessary for the healer to do is to hold with his mind and thought to that one thing. The faculties of the mind and soul are thus brought to a focus, like the sun's rays by a sun-glass."

". . . . The healer should have no doubt in his own mind as to the effect of the treatment."

". . . .The people who stand between the two realms—the outer and the inner— . . . . may *say* prayers to God, but they really pin their faith to matter."

". . . . It is the inward desire that effects all outward expression."

". . . . If we will to be well, if we determine earnestly that the spirit within shall find free expression in mind and body, then will we surely come into our inheritance of power. . . . One action starts another action, and this will go on through the great law of vibration, and when this law of vibration is understood sickness and disease will become a thing of the past."

Moral: If you have an ache or a pain or a cancer keep away from the surgeon's knife; get a grip on yourself; hunt up your soul and your soul's will-power and cure yourself!

We advise you, nevertheless, to look well to your diet, practise daily baptism, and, in case of cancer, to interview some intelligent operator with the X-ray.

Notes and Queries.

Query 153. Why is it that, at one time, a small amount of intestinal gas, as indicated by abdominal distension, will cause a great deal of pain (colic), and at another time a very much larger quantity will be attended by no pain at all?

C. R., Hamilton, Ill.

Answer.—Circumstances alter cases, and why not gases? A very small quantity of gas may be present in conditions that cause an amount or degree of pain that is quite disproportionate. It would be necessary to know the occasion or cause of both the small and the large presence of gas before this question could be intelligently answered. Assuming that gas in the intestine means flatulence, and that flatulence results from abnormal fermentation of food, or of substances that are made to masquerade as food, it could happen that said substances caused an intense degree of irritation and resultant pain without being accompanied by much gaseous fermentation. On the other hand, some very bland form of food might be a little delayed in the digestive process and set up such a fermentation as to result in considerable distension without causing anything serious in the way of pain.

Queries 154 *and* 155.

Will you kindly give us the present status of the best medical opinion in regard to the following questions?

1. Is it advantageous or safe to use any drinks or liquids with or just after meals, like water, tea, or coffee?

2. If the use of such drinks in moderation is permissible or advantageous, what is regarded as the safest, and especially as between coffee, tea and water?

C., Chattanooga, Tenn.

Answer.

1. The taking of liquids *at* meals is quite universally condemned by all dietists, for the reason that one who drinks at meals is quite sure to swallow food that is imperfectly masticated and insalivated. It gets to be a confirmed habit. People in robust health and living on a sensibly selected diet can ignore this rule with comparative impunity. Dyspeptics and other invalids suffer much from its habitual non-observance.

The proper hydration of the food ingested is, however, quite necessary to its ready and perfect digestion; but this can be better accomplished by taking the fluid some time *after* the meal.

The less liquid of any kind taken during the act of eating the better, on general principles.

2. This query is partially answered above.

The question of table beverages has been pretty well discussed in the pages of the GAZETTE within the past year or two. See the numbers for July, 1902, and July of the present year.

A great many people—no doubt a very large majority of the citizens of this country—have become confirmed *habitués* of either tea or coffee. We have such an antipathy to the stereotyped array of statistics that we refuse to remember whether it is 9,900,000 or 900,000 pounds of coffee annually imported into the United States. Very few tables are considered in any sense complete without the coffee set—pot, cups and saucers, cream and sugar—yet there is no doubt as to the agency of both these beverages in making us a nation of dyspeptics and neurasthenics. People do not become addicted to the use of drinks that neither stimulate nor narcotize. A mild degree of one or the other effect is the thing sought.

Cocoa and milk are less harmful than tea or coffee, and pure water is ample for all physiologic needs.

In this connection Andrew Lang's rendering of the concluding lines of a little poem by the late pope may be interesting, although we cannot fully endorse all the sentiments:

Nor shun the bowl of foaming milk that feeds
The infant, and may serve the senior's needs;
Next on the board to Heaven's gift, honey, placed,
And, sparing, of Hyblæan nectar taste;
Pulses and salads on thy guests bestow—
Even in suburban gardens salads grow—
Add chosen fruits, whate'er the times afford.
Let rose-red apples crown the rustic board.
Last comes the beverage of the Orient shore,
Mocca, far off, the fragrant berries bore,
Taste the dark fluid with a dainty lip,
Digestion waits on pleasure as you sip.
Such are my precepts for a diet sage,
That leads thee safely to a green old age.

Query 156. What is the meaning of the expression "getting the second wind?" Why is the first wind lost? That is, what is the condition of the circulation and respiration when these are lost, and how is the second wind acquired? I understand that it is without any intermission of physical effort.

H. C. B., Conn.

Answer. This query is more like a volley. It should have been addressed to a journal of athletics. What does the plodding editor of a journal of dietetics know about getting a second wind! He is accounted lucky if he manages to get his first wind in good time and regular order.

But he does not see that it is necessary for the first wind to be lost before taking aboard the second. Why not try to furnish storage for both?

Our correspondent must excuse us if we talk back; that is, if we try to answer his volley by asking other questions.

What is the first wind?

We take it that it is the first breath of the newborn. If the baby loses his first wind and fails to "catch on" to a second instalment within a very few seconds or minutes, the undertaker and sometimes the coroner are ready for an inning.

If the point aimed at by our correspondent relates to the fact that sudden and rather severe exercise is apt to put one out of breath, as the saying goes, and that after a little time one catches up, as it were, the explanation undoubtedly is that the sudden call on the muscles momentarily exhausts them and disturbs both the circulation and respiration; but that the motor centres rally to the emergency and soon put the organs and muscles involved in fighting trim to correct the unusual demand made upon them. This rally must be the so-called "second wind."

Query 157. Can you advise me whether the treatment of tuberculosis or consumption mentioned in THE DIETETIC AND HYGIENIC GAZETTE of August is practised in the United States, or where one can obtain the best treatment for this disease? Any advice on this subject will be highly appreciated. A. W., Massillon, O.

Answer.—We do not know that any one in this country has undertaken the plan of treatment mentioned in the August GAZETTE. Nor is it well to place much faith in this preliminary announcement. If the treatment has one-half the merit the first report claims for it, rest assured it will not long be kept in the background. Like most of the announcements of marvellous cures which appear at regular intervals in the newspapers, it may never be referred to a second time, simply because it has no real merit.

The most promising treatment, as far as yet discovered, for tuberculosis, consists of outdoor living—not merely on sunny days, but every day and every night, too, practically speaking—and proper diet. No specific drugs have yet been discovered. Very promising results have followed the use of the X-ray, and this wonderful ray alternated with the ultra violet ray in some cases. Both these rays are claimed to be germicidal, but unlike other germicides that have been vaunted in tuberculosis, they do not in competent hands injure the patient while destroying the germs.

Query 158. A claims that an infant possesses just as many nerves, arteries and veins as an adult, being merely smaller in size. B denies this statement, and insists that these organic parts are not only larger but more numerous in the adult. C, who is your correspondent, declines to express an opinion, but would like to know which of his friends is in the right.
G. P. H., New York City.

Answer. The editor of the GAZETTE never held the necessary but technical and trying position of demonstrator of anatomy in his alma mater, or in any other institution; but even if he had been so fortunate he is not at all sure that he could have answered this query with any assurance of scientific accuracy. It cannot be denied that certain nerves and blood vessels are prolonged by growth into abnormal growths, usually termed neoplasms. In these cases the minute capillaries must be practically new vessels and not merely prolongations. But no anatomist has ever discovered in the adult any radically new organ or set of organs, that is, of which the rudiments at least did not exist in the child. Variations occur, such as the bifurcation of arteries at points where they are usually single, in one leg or arm and not in its mate; but there is no evidence on record that these changes ever take place after birth.

On the other hand, B might claim that in one instance the adult lacks one vessel that exists at birth, viz., the *ductus arteriosus.*

If our correspondent is disappointed and dissatisfied with this very imperfect reply, we trust he will not lay it to heart or lie awake nights over it. In any case the world will go right on swinging, while the tax-gatherer and the city landlord will make their usual demands.

Query 159. What *one* thing is most injurious to health? P. H. G., Brooklyn.

Answer. To my mind the one thing most conducive to disease, or, if you prefer, most destructive of health is the taking of food in excess of the bodily needs, or, in other words, eating too much.

Air, food and exercise are the three elements that are absolutely essential to life, and these are so interdependently related that their practical separation is impossible. But although we can live longer without food than we can without air, and longer still without exercise than we can without food, yet the factor which, more than either of the others, determines whether life shall be full of happiness and health or of sickness and suffering is food. Disease, whatever its name or location, is, in its last analysis, always the result of faulty nutrition. Hence if the amount of food taken within a given period corresponds to that required by the air we breathe and the exercise we take, health is sure to result; if taken either in excess or deficiency of this amount disease will inevitably follow.

The *quality* of the food eaten has little or no bearing upon the subject because, on the one hand, if food is too "rich" it is simply so because, by man's meddlesome ingenuity it is made to contain an excess of certain food elements which in themselves are not only harmless but necessary. On the other hand, if food is too "poor" it is because it contains few food elements or too many of the same or of a similar nature.

It should not be a difficult matter for any intelligent person to determine the quantity of food that he should allow himself to eat. Two simple but fundamental laws of nutrition will decide the question for him. One is that demand or necessity must aways precede supply; and the other is that the supply must never *exceed* the demand. If these two laws were never violated, such a thing as indigestion or dyspepsia would probably be unknown, and nine-tenths of the diseases that now afflict humanity would soon cease to exist.

A real desire to conform to these laws, an unperverted appetite and a determination to eat only the simpler foods in the combinations provided by nature, instead of swallowing the complex and sometimes abominable concoctions provided by art are all of the aids any person really needs to practically solve the problem and enjoy the blessings that will flow from its solution. Whether or not any person bound by the fetters of long-continued habit and lacking in determination and force of character would be materially assisted in his effort to conform to the laws by the murder of all French cooks as well as all venders of unwholesome delicacies with which our markets are flooded is a question which I, without even suggesting, must ask every individual to decide for himself. P.

A BOOK REVIEW.

In this strange book no hero walks,
And through this book no villain stalks,
And o'er no maiden's sunny head
Is any mother's blessing said.
This book contains no secret grim,
Nor ghosts that flit through turrets dim,
No wit enlivens any page,
No wrongs that stir the soul to rage,
It lauds no lovely heroine,
It has no lover her to win,
No deeds are told, or good or bad—
No mention made of lass or lad,
No word is therein writ or said—
For 'tis a blank-book ruled in red.
—George Hyde Preston, *in Lippincott's.*

* * *

How Science and Christian Science ran a race in supplying a new finger and a new leg, which got hopelessly mixed up in their growth, is the burden of a laughable tale by John Swain in the June *Lippincott's Magazine.*

THE

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THE TREATMENT OF CHRONIC DISEASES BY PHYSICAL THERAPEUTICS, THROUGH THE SYMPATHETIC NERVOUS SYSTEM.

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I.

A REVIEW OF THE SYMPATHETIC NERVOUS SYSTEM.

The sympathetic nervous system consists of (1) a series of ganglia connected together by intervening cords, extending on each side of the vertebral column from the base of the skull to the coccyx; (2) of three great gangliated plexuses situated in front of the spine in the thoracic, abdominal and pelvic cavities; (3) of smaller ganglia situated in relation with the abdominal and other viscera; and (4) of numerous nerve fibres, which again are of two kinds (cords), the communicating, by which the ganglia communicate with each other and with the cerebro-spinal nerves, and the distributing, by which the sympathetic system comes into close relationship with all the internal viscera and the coats of the blood vessels, and by which means it is able to reach all parts of the body wherever blood circulates.

The ganglia of these cords lie close to and in front of the vertebral column, corresponding nearly in number to the vertebrae against which they lie, except in the neck, so that we have 3 cervical, 12 dorsal, 4 lumbar and 5 sacral; the 3 cervical are situated in front of the transverse processes of the vertebrae.

As the two cords pass into the pelvis they converge and unite in the median line to form a single ganglion, the ganglion impar, placed in front of the coccyx.

Each ganglion may be considered as a separate and distinct center possessing communicating as well as distributing fibres; the communicating branches are in relation with other ganglia and with the spinal nerves while the distributing fibres supply the neighboring tisues; a close relationship is therefore established between the entire length of this ganglionic cord, the tissues and the cerebro-spinal system.

The three great gangliated plexuses are situated in front of the spine and according to their situation are known as the cardiac, the solar or epigastric, and the hypogastric plexuses. They consist of collections of nerves and ganglia, the nerves being derived from the gangliated cord and from the cerebro-spinal system; they distribute branches to all the viscera; again observing the same close and intimate relationship between all the internal organs and the cerebro-spinal system.

The third division or smaller ganglia are found scattered amidst the nerves and in certain viscera as the heart, the stomach and uterus; they also are capable of acting as centers possessing communicating branches to receive and distributing branches to send out impulses.

The fourth division or branches of distribution are derived from the gangliated cords, from the great plexuses and the smaller ganglia; they are principally destined for the blood vessels, the thoracic and abdominal viscera, supplying the involuntary muscular fibres of the coats of the blood vessels, the hollow viscera and the secreting cells.

In addition to these, the five ganglia connected with the third nerve, Ganglion of Gasser, Meckles, Otic, Ciliary, and Submaxillary constitute the entire sympathetic nervous system.

The cardiac plexus is situated at the base of the heart and is divisible into a superficial and deep portion; the deep portion is situated in front of the trachea at its bifurcation; it is formed by the cardiac nerves derived from the cervical ganglia of the sympathetic and the cardiac branches of the recurrent laryngeal and pneumogastric.

The epigastric or solar plexus supplies all the viscera in the abdominal cavity.

It consists of a great network of nerves and ganglia situated behind the stomach; it surrounds the cœliac axis, extending down as low as the pancreas and outward to the suprarenal capsules.

From the solar plexus we have the following sub-division: Phrenic or diaphragmatic, Suprarenal, Renal, Spermatic, Coeliac, Superior mesenteric and aortic plexuses. The suprarenal deserves especial mention; it is formed by branches from the solar plexus, from the semilunar ganglion, from the phrenic and great splanchnic nerves. It supplies the suprarenal capsule; the branches of this plexus are remarkable for their large size in comparison with the size of the organ it supplies; this is of more than cursory significance; it partly accounts for the importance of this organ in the economy.

The Hypogastric plexus supplies the viscera of the pelvic cavity; it is situated in front of the promontory of the sacrum between the two common iliac arteries and is formed by the union of numerous filaments which descend on each side from the aortic plexus and the lumbar ganglia.

The hypogastric plexus is divided into two lateral portions which form the pelvic plexuses; these in turn form subdivisions supplying and forming the inferior hemorrhoidal, the vesical, the prostatic, the vaginal and uterine plexuses.

From the foregoing anatomical review it must be apparent that the sympathetic nervous system is in more than close relationship with not only all the organs of the body, but by surrounding the blood vessels even down to the capillaries reaches the most superficial as well as the deepest, the nearest as well as the most distant structures of the whole body. Since the presence, and its peculiar anatomical relationship with the cerebro-spinal nervous system and all the organs and tissues of the body is undisputed, it can naturally lead to but one logical conclusion and that is, that the sympathetic nervous system has a function to perform and it need hardly be said a most important one. *We will now consider some of the physiology of this most important nervous system.*

If we view the sympathetic nervous system as a whole, we find that it differs but slightly from the central nervous system; beginning above by the ophthalmic ganglia and ending below by the ganglion impar, we have this double chain of ganglia and nerve fibres connected with each other and with the cerebro-spinal system; every ganglion sends to and receives from the central nervous system fibres. Each ganglion is capable of acting as a separate nerve center for the particular area to which its own as well as the motor and sensory fibres are distributed. As we know from abundant experiments the specific action of a motor or sensory nerve when irritated, so have we formed conclusions regarding the effects of irritation upon a sympathetic nerve; the result of such irritation is manifested by a change in the local nutrition, calorification and secretion.

When the sympathetic nerve is divided in the neck we have following immediately a local increase in temperature with a very marked increase in the supply of blood on that side of the head corresponding to the side of section. The increased temperature is no doubt due to the local exaggeration of the nutritive processes.

Apparently dependent directly upon the hyperaemia, there is also a marked injection in the conjunctive with a dilatation of the pupil upon the corresponding side; should a section of the nerve be so made or a permanent compression applied that these phenomena continue for two or more weeks a notable increase in the size of ear and other tissues affected is observed.

When the distal end of the sympathetic in the neck however is irritated with the constant or galvanic current an entirely new set of manifestations occur where there was previously hyperaemia with increased temperature and dilitation of the pupil, we now have local anaemia, decrease in temperature and contraction of the pupil; should the section or ligation be low enough down to include fibres of the coeliac plexus we have a slowing of the heart's beat as well as a weakening of the heart's impulse, and again if the distal end be irritated with a weak galvanic current we observe at once an increase in force and frequency. As regards secretion the influence of the sympathetic is very marked; when the sympathetic filaments distributed to a gland are divided, the supply of blood is very much increased and an abundant flow of secretion follows, whereas if irritated with a galvanic current, there will be glandular anemia with contraction of size and absolute stoppage of its secretion. Neither is it at all necessary in order to produce these various phenomena to resort to section of the nerve, application of heat or cold, the faradic or galvanic currents, light or heavy pressure; certain visual auditory or olfactory impressions all serve more or less to bring into action or interfere to a greater or lesser extent with the function of the sympathetic. All the various phenomena observed by irritation of the cervical sympathetic may be reproduced on all other organs and tissues of the body, if the location of the specific center of the same is known. Before leaving the physiology of the sympathetic nervous system we must have become impressed with the fact that from its close and intimate connection with the cerebro-spinal and the arterial system it has well been named the sympathetic system, for is there a single act, manifestation or phenomenon by or even surrounding an individual either appreciated by his special senses, the motor or sensory nerves, which sooner or later will not enlist the sympathy of the particular system under present scrutiny. If any other name should ever be suggested it would seem that the name Vegetative nervous system might properly be bestowed upon it, for is not after all the growth and the repair of all tissues under the direct supervision of the sympathetic nervous system? Knowing and believing this to be a fact, does it not seem reasonable that this system or part of our economy is deserving of the highest of our consideration in the therapeutic application of our various remedial measures?

II.

THE REFLEXES.

Realizing and appreciating the important anatomical and physiological arrangements of the sympathetic nervous system it behooves us to consider at least one extremely interesting as well as more or less obscure function of this and the cerebro-spinal system, namely, the reflexes.

All acts must be either reflex or automatic, voluntary or involuntary, or a combination of both, one more or less predominating over the other.

Automatism is a power possessed by certain nervous centers in the cerebro-spinal axis, that is the power to initiate outgoing impulses independently of any ingoing impulses.

Respiration and cardiac action may be mentioned as being truly automatic. Constancy of this automatic action is assured by inhibition and augmentation; both are subdivisions of the automatism of nervous centers.

Inhibition is therefore that automatic

function of a nervous center by virtue of which it holds in check some function of the body.

As an example of inhibition we may mention the function of the cardiac inhibitory center, in the medulla, which by means of the vagi checks the rapidity of the heart's action; this function of inhibition can be augmented reflexly, as for instance, when the abdominal sympathetics are irritated with sufficient force, the heart may actually be made to cease beating entirely. Augmentation is of course the opposite function by virtue of which they accelerate or augment some particular vital function; the respiratory center in the medulla is constantly receiving impulses tending to accelerate its function, thus causing increased respirations whenever the good of the economy demands it, which demand is usually made reflexly.

By reflex function is understood the power of such centers to send out efferent impulses in immediate response to afferent stimuli. As the ingoing impulse may affect some motor or secretory or any other function, we see that the result of reflexes may be infinitely varied. Three neurones are essential for the completion of a reflex act. An afferent or ingoing neuron to convey the impression, a recipient neuron at the nervous center, and thirdly an efferent or outgoing neuron connected with some organ that may manifest the reflex impulse. Although generally speaking it is true, that the greater the ingoing impulse, the greater the reflex, yet we often see a great disproportion between the two, in that a very limited stimulus will ofttimes cause the most violent explosion of the reflexes. This can only be explained when we bear in mind, that each ingoing neuron, entering the spinal cord by its proximal process divides into an ascending and a descending branch, which in turn give off lateral filaments at different levels of the cord called collateral fibres.

If irritation or ingoing impulses be prolonged, we will first have reflexes on the side irritated, then on the opposite side of the body and finally the whole body may be thrown into reflex spasms. This is explained by the presence in the gray matter of the spinal cord of three kinds of recipient cells (1) the tautomeres, which send their ascending and descending processes with collaterals on their own side of the spinal cord; (2) the heteromeres, which cross over to the opposite side of the cord and there send off ascending and descending fibres and collaterals; (3) the hecateromeres, which ascend and descend with collateral on their own and on the opposite side of the spinal cord.

We have now briefly viewed the sympathetic nervous system, its anatomy, physiology, and its close and intimate relationship with the cerebro-spinal as well as the entire vascular system, the reflexes, which, could not manifest themselves excepting by that harmonious arrangement of all these systems acting as a unit.

It will now be interesting to again view this compound and complex system as a whole, and instead of the nominal manifestations pay our homage to abnormal or pathological conditions spoken of as disease.

Disease is a condition of the body marked by inharmonious action of one or more of the various organs, owing to abnormal conditions or structural changes.

We can roughly divide all causes of disease into three general classes, namely, diseases produced by Microbic invasion, Chemical, and Physical agents. One of these three, or frequently the combined action of some or all of these three causes, are sure to be the foundation of all of our ills.

The particular manifestation produced upon the economy or part of the body depends of course upon, first the cause, second the particular organ or tissue affected, and third the most important of all, the reflex effect upon the body in general. This then would explain the difference between acute, subacute and chronic, as well as between local and constitutional diseases.

The immediate as well as the remote effects of disease is twofold, either the effect is hyperæmic or anæmic of the entire or only certain parts of the system; hyperæmia may be and most frequently is coexisting with anæmia, that is to say, hyperæmia may exist in one part of the body, thereby causing anæmia in another.

The direct as well as the remote effects of either one of these states are too well known to require elucidation here.

Hyperæmia must sooner or later bring about congestion, with its train of symptoms; or anæmia will cause atrophy and degeneration, the symptoms of which are also too well known, especially in spinal cord diseases.

III.

THERAPEUTICS.

Viewing diseases of all kinds or their causes within this narrow range of the three causes, and practically only two effects, our line of therapeutics becomes simple, and as simple as it may appear, it is also effective as well as scientific.

One of the first principles in the practice of medicine is to remove the cause if still active; frequently, however, the cause cannot be discovered, or, if discovered, cannot be removed; we then must satisfy ourselves by treating the effects and rather assisting nature in her noble effort to cure disease.

As previously stated the immediate effects usually resolve themselves into hyperæmia and anæmia, locally or constitutionally. The word effects of the cause should not be mistaken for symptoms, for as has been stated we may have a long array of symptoms from these two effects.

Pain is usually one of the most common symptoms we are called upon to treat. As we have seen, all nerves of motion and sensation at their entrance or exit to the spinal canal become closely allied with the sympathetic nervous system, and it is this system, whose office it is to take cognizance of the various sensations which it receives from all parts of the body, and after properly recording and interpreting the same, either in the sensorium or in its own reflex centers of the cord, to govern the nutrition and blood supply of the parts from whence the painful impression proceeds, in a manner best calculated to effect its abolition.

It is therefore only when nature fails in her attempt or when our measures are so directed that we assist nature in her effort that the physician plays the greatest role.

This assistance which we would lend nature then must be through the same channels through which she would accomplish her purpose, namely, the sympathetic nervous system. No matter what portion or organ of our economy suffers, a reflex center is sure to be found somewhere in the spinal cord; some of these centers are well known, others are more or less obscure. The sense of pain and sympathy, however, come to our rescue even here.

How to find painful centers.—For this purpose the patient's back is bared, a high tension faradic coil is brought into use. Before applying this current, the coil should be tested with a four to six inch Geissler tube; if the coil is capable of illuminating the tube, then it possesses the proper amount of penetrative power to be useful for our purpose. The Kidder Manufacturing Company, of New York, wind their coils in a new and peculiar manner, making them especially fit for diagnostic work.

One pole of the battery—it does not make any difference which—is attached to a six by six inches moist electrode and applied in front over the epigastric plexus, the other a small electrode, two by two inches, well moistened, is passed lightly over the spinal column, with a current of a strength sufficient to be agreeably susceptible; pass this current up and down the entire length of spinal column with ordinary pressure eight to ten times and remove the electrodes, when to our agreeable surprise we have boldly outlined upon an otherwise white background vividly red spots. These spots for some few minutes after the current is removed tend to become even more prominent, and more sharply circumscribed; if we now make digital pressure upon anyone of these indicated points we will find sensitive or painful areas, while no pain will be complained of in the intermediate region.

These pictures in a short time become almost pathognomonic of certain ailments so that the observer can almost make a diagnosis from the reflex centers involved. The explanation of this phenomenon is neither mysterious nor difficult, if we remember the nerve connection just prior to entrance or exit of the spinal canal; and if we bear in mind the effect of irritation upon any tissue, then we have a clear conception why the sympathetic nervous system should respond so readily to our irritation, and why the more irritated centers (from other causes) should respond before even the normal tissue appreciates the irritation produced by the current.

Having by this or any other manner or method located the reflex centres involved it next becomes our duty to ascertain whether the distal tissue or organ involved is in a hyperæmic, or anæmic condition; should we find that somewhere in the body an organ or tissue is swollen and in a state of chronic congestion, our course would be to so influence the sympathetic center that the vascular supply would be limited and this can be accomplished by several methods, 1st by the application of cold water, icebag, or various evaporating lotions or actual freezing with ethyl chloride; 2d, the galvanic current, a passage of a weak current so stimulates these centers as to cause a contraction of blood vessels supplying the part; 3d, the static brush discharge; 4th, mechanical vibration lightly and superficially applied; 5th, gentle massage applied to the tender spots; 6th, the application of the light treatment especially the red rays.

If on the other hand we should find that we had to do with anæmia it would require just the opposite treatment: 1st, heat as hot water bags, counter-irritants, rubifacients, actual or galvanic cautery; 2d, the passage of a high tension faradic current; 3d, static sparks and the static wave current; 4th, mechanical vibration with deep pressure and long stroke; 5th, heavy massage applied deeply in the interspaces; 6th, the application of the light treatment especially the blue or ultra violet; all these applications have the effect of causing the reflex centers governing the particular area to inhibit the vaso-motor nerves and cause a dilatation of the blood vessels with increased supply of nutrient material. But stop to ponder for one moment; if in a given case of meningitis or myelitis on the one hand and spinal sclerosis or locomotor ataxia on the other, where the pathology is exactly reversed, the treatment should be opposite to that which is indicated, the lesion would certainly get worse, the particular system of treatment condemned and sink into oblivion, without the operator perhaps ever knowing the reason for his failure, while from the other point of view the operator produces glorious results, considers the particular treatment instituted a panacea and becomes an enthusiast until he meets his Waterloo, perhaps never knowing why he succeeded nor why he failed.

This clearly demonstrates the reason why the same remedy sometimes in some operators' hands succeeds when again with others nothing but dismal failure seems to be their reward.

A few practical cases perhaps will help to make clear the selection of the particular physical measure to be employed.

Case 1. Mrs. L., Hackensack, N. J.; age 35 years; family history neglected; always well until three years ago contracted a cough; under treatment seemed to get better but in a short time reappeared; last winter was told she had chronic tuberculosis, could not live more than three months unless she went to Colorado; after a thorough examination including X-rays, no tubercular lesion found; diagnosis chronic bronchitis. Treatment: Static brush discharge for two weeks, gentle superficial vibration to tender spinal areas. Present condition: Feels absolutely well, no cough or expectoration for six weeks, gaining weight, appetite good.

2. Mrs, M., of New York, age 38, cough for two years, similar to Case 1; had to live in Washington, D. C., last winter; returned to her family early in the spring with the same harassing cough; put upon similar treatment; pain and cough disappeared, sleeps and eats well, gaining in weight, has not coughed for four weeks.

3. Baby H., New York, 16 months old, family history neglected; one child of a family of six, well up to the age of one year, then began to have convulsions, was treated with more or less success; convulsions returned, nothing seemed to influence them, two to three daily. Last December examination revealed several tender spots along the spine with the muscles in a state of spasm and contraction. Treatment with the high tension current until the muscular spasm was relieved; then put on rather heavy vibration with long stroke; convulsions disappeared in one week; was discharged as cured in May, not having had a single attack in four months.

4. Elsie R., New York, age 9 years, last winter fell on the ice; shortly after developed chorea, gradually getting worse until the whole body was involved; drugs had little or no effect. Spine very tender, muscles in hard knotty bunches; treated with high tension faradic, then put on coarse vibration with long stroke; in one week a marked improvement took place, in three weeks, or the tenth treatment, all twitching ceased; has had no return now for six weeks; still under treatment.

5. Harry R., 14 years. Similar except as to cause, which is not known; had to remain home from school on account of twitchings, had been under medical treatment for six months with very little results; put on deep vibration at once with long stroke; made immediate gains; is under medical treatment, however, with his physician at the same time; has had no twitching now for two weeks.

6. Mrs. N., New York, age 28, one child: has peculiar delusions, desire to jump overboard, out of windows, feels like pulling her eyes out, rather plethoric, face and eyes suffused, no particular pain, but feels fullness of the head, menstruates regularly; tender spots at cervical region down to fourth dorsal treated with galvanic 5 M.A., positive to forehead, negative to cervical and dorsal region; for the past two months gentle vibration short stroke, a light pressure to effect contraction of circle of Willis; for past two weeks feels very happy, has no delusions or peculiar thoughts, still under vibratory treatment.

7. Mr. W., Mt. Vernon, age 40 years, stock broker, very nervous, can't sleep, but drowsy and tired during the day, cannot eat on account of a nervous dyspepsia of some years' standing, always has to take cathartics. On examination shows marked tenderness at 1-3 dorsal and from 5-8 dorsal. Treatment: High tension faradic current entire spine for five minutes; long stroke and deep vibration over tender spots for four minutes. This was continued for one month, then rectal vibration was added. At present time eats and sleeps well, awakes refreshed, bowels still move a little sluggish; has taken no drugs to assist for one month.

These cases were simply intended to show what can be done with chronic diseases if we take the sympathetic system into consideration, and how to choose the particular method of treatment. Yet it must not be inferred that any one or all these procedures could or should replace medicine or surgery; they are simply aids, for it has been noticed that patients under drug treatment with their regular physician did better the moment these two systems were combined than they did with either alone. A word should also be said regarding vibrators. The writer has tried about every known and conceivable form of apparatus, and is therefore in a position to speak intelligently upon this vital part.

There is to-day only one apparatus on the market that embodies the essential and necessary features, namely, rigidity and freedom from vibration as far as the operator is concerned.

A vibrator constructed upon the flexible shaft idea is absolutely inadequate and has no place in a physician's office after one with a solid, rigid shaft has been tried; neither has the writer been able to find a single so-called vibrating instrument that truly vibrated at all—for under vibration we understand a to-and-fro movement of a rapid order. Most of the flexible-shaft vibrators are in reality rotators, still others are of the percussion type, but the best as far as the writer's experience goes, extending somewhat over twelve years and only recently brought up to date, is manufactured and sold by the Chattanooga Vibrator Company, of New York City, and in every respect a scientific up to date instrument capable of all that vibration can accomplish.

As far as the galvanic current is concerned, there is really no difference; any good galvanic battery will answer the purpose; the main thing to bear in mind is the proper differentiation between the use of small and large currents. The error is usually made in trying to do too much with the cells in the office and too little with cells contained in the operator's gray matter.

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TEACH CHILDREN TO SWIM.

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Certainly no more appropriate time and place could be chosen to bring to the notice of the profession some of the accidents that occur in bathing and boating. Even here in lovely Bar Harbor, where I have spent many happy days, sad cases of drowning occur every season, and it is safe to say that most of them arise from inexperience in swimming and are consequently preventable. As a physician and practical athlete, I may show more than ordinary enthusiasm in making a plea for the educational, hygienic and curative advantages of an exercise that I have practised at many different places over the world, even in such places as mountain lakes and the mid-Atlantic.

The frequent accounts of drowning that one reads constantly in the daily papers at this season, aside from those occurring in the late floods in the West, instead of dampening rather rekindle an ardor to which is added a tinge of regret consequent upon the reflection that most of these accidents arise from inability to swim; for with only a moderate knowledge of this easily acquired art, many lives may be saved and much bereavement prevented. Philanthropic motives, if no other, would therefore prompt one to give the matter more than passing notice. In view of the surprising great number of deaths from drowning, it is lamentable in this practical age that the useful art of swimming takes such small part in the training of youth. Young minds are crammed with all sorts of useless information to the neglect of what is essential to the preservation of personal health and the saving of life. Legislators vote large sums of money for doubtful jobs, yet refuse to countenance the establishment of swimming baths in our cities, though I am glad to say that the grand old state of Massachusetts has done much in this line. The police regulations of most of our large towns, conceived in the interests of extreme prudery, virtually tend to make swimming one of the lost arts. Those of the District of Columbia, for instance, were evidently framed in the same spirit of protest which caused a former Governor of Maryland to object to midshipmen swimming from a certain wharf in the Naval Academy because the ladies could see them with their opera-glasses!

That people do not fully realize the importance of swimming is a trite observation, but a truth none the worse for frequent repetition, and allowing it to lie fallow will never bring about the desired reformation. Long personal experience with swimming so convinces me of its usefulness that, if it came to a choice between knowing the higher mathematics or how to swim, I should choose the latter every time. At many of the larger schools in England lads are obliged to pass in swimming before they are allowed to go out in boats. This rule, established at Eton in 1840, has been effectual there in the prevention of drowning, only one case having occurred since that time, although the swamping of boats has been frequent. A yearly average of 150 boys learn to swim and pass the test. It is, of course, possible to enforce such a rule in schools and among bodies of individuals where discipline obtains, yet this manly and invigorating accomplishment is neglected both in educational establishments and in the army. Swimming is taught at our Naval Academy, but at West Point it is not, and most of the cadets are lamentably deficient in this respect. The statistical exhibits of our late war show the strongest reason why a soldier should know how to swim, while the statistics of the Civil War show that the number of those known to have been killed in action was 67,058, while there were drowned 106 officers and 4,838 men. The small regular army lost 5 officers and 89 men from this cause; the United States colored troops 6 officers and 289 men; and the volunteers furnished a large contingent, the state of Ohio alone having lost 14 officers and 770 men from drowning. Just think of a number amounting to five regiments perishing from an easily preventable cause—for the majority of these men were drowned in such circumstances as fording a stream, crossing narrow rivers, or by the upsetting of small boats when a few strokes would have sufficed to save life.

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* From *Mass. Med. Journal.*

But the best swimmers are often drowned, say the cynical wiseacres. True, a good swimmer sometimes meets with that misfortune, but the occurrence is so rare that for that very reason a vivid effect is produced on the imagination and memory of unthinking persons who, accustomed to make *post hoc* conclusions, never for a moment consider the greater number who are saved by knowing how to swim.

Among other prevailing and groundless objections to swimming are the production of colds, the danger of heart failure and the risk of being bitten by sharks. As to colds and the effects of the cold immersion in water, I should say that the danger therefrom is greatly exaggerated, if my own experience is any guide, for I have never had a cold from swimming in icy water. On the contrary, one of the severest colds I ever had was contracted in Washington some years since with the thermometer high in the nineties, which necessitated a visit to the seashore, where after two swims the cold disappeared as if by magic.

There are, of course, many weak people whose chest organs are in such condition that they should not venture to swim; but I am convinced that the neglect to learn swimming in childhood and the absence of this eminently hygienic exercise are responsible for many flabby hearts, weak lungs and torpid minds.

In addition to being generally tonic and bracing, the effect of swimming considered in itself is to develop the muscular system and to exert a favorable influence on the great bodily functions, as the digestion, nutrition, respiration, circulation and innervation. No other exercise with which I am familiar gets the heart and lungs in better working order, and none is better for getting one in what sporting men call "condition." After two weeks' daily swim in salt water I have run a measured mile on a beach with a very little more embarrassment to circulation and respiration than if I had walked the same distance.

Aside from the physical, another advantage of a high order accrues in the way of happy moral influence. Boxing, sword-play and several other manly pastimes will do much to develop courage, prudence and cleverness; but the cold-blooded quiet and presence of mind which aid us to avoid danger or to conquer it, or to lend ourselves to an act of devotion, are best cultivated by the exercise of swimming. What, for instance, is a more brilliant and commendable act of devotion than that of a dauntless swimmer who, regardless of self, plunges overboard at the risk of his own life to save a fellow-being from drowning?

As a curative means, swimming also comes in for praise. In this respect it is superior in many conditions to the so-called "tent-cure," to massage, electricity, or drugs, and may be employed with benefit in scrofula, chlorosis, convalescence, insomnia and many other nervous diseases, as chorea and hysteria. The latter malady especially, I have known to be cured after a course in the swimming baths of Alameda, Cal.; and my experience as a neurologist leads me to recommend swimming as one of the best adjuvants in the treatment of nervous diseases.

The danger to be apprehended from sharks is more a figment of the mind than a reality. I have no personal knowledge of shark bites, although I have done much swimming in such infested places as the Gulf of Mexico, the harbor of Cadiz, the Azore Islands, Bermuda, Tybee, the mid-Atlantic and other places where these voracious animals are reputed to gobble up such small bait as a man at a single mouthful. For years I have made it a point to question sailors and fishermen in various parts of the world as to their actual and personal knowledge of shark bites, and though the inquiry has called forth some remarkable fish stories, I have met but two people with any personal knowledge of the matter. Admiral Porter told of an instance in which he saw a man attacked; the other person, a pilot at Bermuda, knew of a man that had his hand bitten by a shark just as he was pulling in a hooked fish from the water into his boat. Sharks often collect around the carcass of a whale while it is being "cut in," and men sometimes slip overboard among them, yet after a long residence in New Bedford and a somewhat extended experience with the Pacific Arctic whaling fleet, I have never met a whaleman who could tell me of a man that had been bitten. Mr. Truxton Beale, of Washington, once when a passenger on the Pacific Mail, showed his unbelief in shark stories by swimming across the shark infested harbor of Acapulco, although warned by the captain of the ship that he would be eaten up before he got a hundred yards away.

Traditional accounts of the rapacity of sharks are as extravagant as the records of some of the old writers who tell of dead sharks cast upon the shores of the Mediterranean of such size that men walked into the mouth and down the throat in order to inspect the stomach. Even Rondelet, in his "History of Fishes," speaks of these animals as having swallowed men in entire suits of armor.

Documentary evidence as to shark bites is also very scanty. During the last sixty years, soldiers by the tens of thousands have swam at Fort Monroe, Va., yet there is no record of one having been bitten by a shark, nor have I been able to ascertain that any accident of the kind has occurred at Malta or Gibraltar. There does not appear to be a record of any one ever having been bitten by a shark off the British Isles. I have been unable to ascertain that a single bite of the kind is reported among the medical records of our War or Navy Departments or those of the Marine Hospital. In a book about the West Indies, Mr. Charles Ives says it is singular that so few facts are reported which indicate the danger from Bahama sharks, and that the divers continue to be so numerous and bold. He has heard of but one instance in which a Nassau shark has dined upon a negro, and the report in that case is not well authenticated.

Medical literature has but few reports of shark bites. After diligent search I have found but seven references, the earliest in the *London Medical Gazette*, 1823, and the latest in the London *Lancet*, 1896. The bites occurred in Australia, South Africa and India. The Hooghley and Ganges rivers are the worst places in the world for sharks and alligators. A particular kind of shark, the *Carcharras Gangeticus*, which is very fierce and bold, sometimes dashes among the crowds at the bathing ghats, and has been known to bite a boy in two feet of water. All persons bitten at these places generally die from the bite, for the reason that the shark, living on carrion, portions of which stick between the teeth, carries infection to those who may afterwards be bitten. The former habit of throwing the dead in the river is supposed to account for the boldness of these particular sharks in attacking the human species.

Even admitting the occasional accident of shark bites, the danger therefrom is almost infinitesimal compared with railway travel or even accidents from horses; and neither this unimportant drawback, nor any other that I have mentioned, should have the least weight in preventing the cultivation and spread of an accomplishment that every one should countenance with a view, not to the renewal of the legendary exploits of Leander and Byron, but as a step in that branch of social evolution which better physical development and improved health tend to promote.

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NON-SECTARIAN MEDICINE.

THE *Columbus Medical Journal* aptly voices the sentiment of the most progressive members of the medical profession everywhere. It says:

"Sectarianism in medicine is founded in selfishness and commercialism. It is sadly out of harmony with science and results in wasted energy, dissociation and retarded progress in art. It is a stumbling block to the science and art of medicine.

"The goal of medical science is truth, and the application of truth to the prevention and cure of disease. But truth is not divisible into schools, and its application to the cure of disease should not be made the basis of sects. To the physician all known truth should be available, all plausible theories should be his to prove. No dogma should fetter his choices, no school should select his remedies, no sect determine his methods.

"It is this realization that sectarianism is restrictive rather than helpful, that it divides and weakens, where union and strength are needed, that has made the great majority of physicians in all ages desire a united profession. They have sought to avoid the use of any term that would imply a school or sect. Allopathy is an erroneous designation given to the regular system of medicine and surgery, not by those to whom it is supposed to apply, but by others as an anonym to the term they selected for themselves.

"The right to select remedies and methods with absolute freedom is so generally recognized by all the so-called schools that sects are sects now only in name. Surgery is alike in all; dietetics and nursing know no schools. Homeopathy no longer pretends to administer infinitesimal doses of inversely potentialized medicines, expecting them to produce symptoms like those of the disease treated; eclectics no longer assume to have a monopoly of wisdom in the selection of therapeutic remedies, and physiomedicals can boast of no useful information that may not be known by all. They why should we not have a united profession? Many believe that we may have an undivided profession and have declared in favor of union by the simple abandonment of sectarian names. These designations have lost their original meaning, and are retained presumably for some supposed advantage in the proclamation which they make to the public. The constitution of the reorganized state and county societies wisely provides that any reputable physician who will agree to practice non-sectarian medicine shall be eligible to membership in these societies and thereby in the American Medical Association. This has raised the question as to what is implied in the practice of non-sectarian medicine. It is the practice of medicine and surgery without proclaiming to the public that such practice is based upon any exclusive method or system. Truth as one sees it is to be the light, judgment as now to be the guide. The only restriction being that one is to refrain from using a sectarian designation which at best serves only to hold out a claim to the public that one has some remedy or method not possessed by our confreres. Not that we must change our methods of practice, but that we are to refrain from advertising them. The following statement expresses the meaning: 'No physsician who indicates to the public that his practice is based on a sectarian system of medicine shall be entitled to professional fellowship or recognition in medical bodies.'

"And what physician who has in that honored title a claim on all medical knowledge, and freedom of all methods, could desire a circumscribing designation which would give him at best only an undue advantage over his professional brother?

"If a physician is not to indicate to the public that his practice is based on a sectarian system, he should cancel sectarian names from his sign and from the title of his medical societies, for they can serve no good purpose there, and are certain to mislead the public."

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THE CLINICAL FEATURES OF GAS POISONING.

In America, where "water gas" is much used, cases of poisoning have increased very largely of late years, and in 1901 as many as 156 deaths were referred to this cause in New York. A considerable number came under the observation of Dr. P. M. Pilcher while acting as resident of one of the Brooklyn hospitals, and he made a clicinal study of them the subject of a recent communication to the Medical Society of the County of Kings. In 25 cases, of which details were given, five were cases in which exposure to gas had been short and recovery was uneventful, but six resulted in death. The more serious cases were those in which the gas had been inhaled during sleep, and in five of the fatal cases the exposure had lasted at least eight hours before the patients were discovered and removed. One died 18 hours after admission, four survived for about 30 hours, and one did not die until the sixth day. Of the six deaths, in five cases the immediate cause of the fatal issue was pulmonary œdema. Only one of the patients who recovered was unconscious for more than a few hours, while in half of those who died coma persisted until the end, the others becoming sufficiently conscious to speak. In all the cases besides cyanosis and the ordinary appearences of more or less complete asphyxia, there was with one exception a considerable rise of temperature, and rapidity of pulse and respiration. In the exception, the temperature was subnormal, but pulse and respiration corresponded with the other cases. In the fatal cases the rise of temperature kept step with the development of the pulmonary œdema, and in four of them rose to over 107° Fahr. Clinically, the cases fell roughly into three groups: mild cases of temporary asphyxia, profound cases of general poisoning, and those in which œdema of the lungs had already developed when the patients were found and brought under treatment. To these a fourth class might be added in which death has already occurred or is occurring from pure carbo-monoxid poisoning. In all these classes of recoverable cases the indications for treatment are numerous. In the mild cases in which there is simply coma without marked alteration in temperature and practically normal respiration and heart action, fresh air, heart stimulants, and protection from cold are all that is necessary to ensure return to consciousness in from a few minutes to one or two hours. In the more severe cases the conditions to be met are (1) the blood changes due to the formation of carbo-monoxid hæmoglobin in greater or smaller quantity; (2) the exhaustion of vital nerve centers due partly to the lack of oxygen and partly to the presence of carbo-monoxid; leading to coma, decrease of blood pressure and disturbance of the respiratory cardiac, and heat regulating functions of the central nervous system. There is also a loss of muscular tone which, from the delay in *post mortem* changes in fatal cases, appears to be due to the direct action of CO. in the tissues. As a consequence of the exhaustion of the central nervous system, the vascular paresis is great, resulting in visceral and cerebral congestion. The tendency to develop œdema of the lungs is marked, and probably due to direct irritation, and cardiac failure, most marked in the left ventricle, results in congestion in, and subsequent exudation from, the lung capillaries. It often develops with very great rapidity, and in cases which end fatally after recovery from coma it is quite the commonest cause of death. In treatment, cardiac stimulants are called for, but oxygen, unless the patient can be forced to inhale it pure, is not of marked utility. The difficulty is to break up the CO. hæmoglobin. Free venesection followed by transfusion of normal salt solution seemed to do more good in this direction than anything else, and direct transfusion of blood is certainly indicated. The lung œdema is best met by free cupping and mustard stupes to the chest and strong purges such as croton oil.

WHAT IS ELECTRICITY?

According to the theory advanced by Prof. J. J. Thomson, which has gained so many adherents, and has so deeply modified scientific thought in the last few years, atoms may be further subdivided into "chips," each of which constitutes a negative charge of electricity. An interesting modification of this theory by Sir Oliver Lodge is noted in *The Electrical World and Engineer.* According to Sir Oliver's theory, all matter is electric in nature. Says the writer:

"In the paper under consideration, the electronic charge carried by the corpuscle is regarded as the corpuscle itself. That is to say, instead of assuming a nucleus or core of matter to carry the electronic charge, the charge is regarded as the corpuscle. All matter is assumed to be built up to these electronic charges or electrons, which are both negative and positive. A hydrogen atom is supposed to contain about 700 of these electrons. A mercury atom is reckoned to have 200 by 700, or 140,000 electrons, all stowed away inside. One might suppose that they are tightly packed. But on the contrary, since the diameter of the electron, to account for its inertia, has to be 10.15 meters, or the millionth of a bicron, there is so much elbow-room for the 140,000 supposed inhabitants of the mercury atom that they are roughly as distant from each other, relatively to their size, as are the planets in our solar system.

"The electrons perform orbits inside these little spheres, but the place which our sun occupies in our visible planetary system seems to be vacant in these atomic systems. According to the hypothesis, the electrons do not swing about a grand central electron, but about one another. The difference between one kind of matter and another lies in the physical and chemical properties of the atoms, but the difference between the atoms is merely due to the difference in grouping of electrons.

"All chemical affinity is traced to aggregations of electrons, or atoms, with odd or unbalanced electrons either positive or negative. Chemical union is the result of the attraction of such unsatisfied electric charges on different atoms for one another. Cohesion is a less locally powerful but more extended electric attraction of groups of electrons in mutual linkage or satisfaction. Cohesion, in the electric sense, as in wireless telegraphy, is the artificially enhanced molecular attraction due to electric stimulus and the momentary inductive displacement of groups of electrons.

"The Lodge theory of the electron appears to differ then from the Thomson theory mainly in postulating that there is no matter in an electron or corpuscle, and that this little fundamental unit is all electric. Thomson's theory means that negative electricity is matter. Lodge's theory means that all matter down to the ultimate corpuscle is electricity. The difference in thought between the two theories is quite appreciable; but there is so little matter in an electron that it matters little to which we pin our faith."

HEALTHY BEDROOMS.

We will be a healthier and happier race when the double bed is banished. The light iron or brass bedstead, with a mattress that can be easily aired and kept clean, is the bed that ought to be generally used. The bed covering *par excellence* is a light-weight blanket that can be frequently washed and kept soft and white. Tucking the bedclothes tightly in is another popular error.

The practice of making up a bed and making it almost air-tight is as unhealthy as it is unclean.

There is considerable difference of opinion as to the necessity to the health of sleeping in a bed placed north and south. The old-fashioned idea that the currents of electricity going from pole to pole affect the sleeper is now supposed to be a superstition.

Yet the habit that most of us have acquired of placing our beds wherever it is possible with the head to the north will probably cling to us. One thing, however, that is of importance is that the bed should not be placed against the wall, but should be accessible on both sides. The old fashion of placing the bed in an alcove, which cannot be ventilated so well as a large room, is considered to be an unhygienic one.

An excellent reason why a bed should not be placed against the wall is that the person who sleeps at the rear of the bed is likely to have his face, during sleep, so near the wall that his breath, striking the wall, will be rebreathed again.

So large a portion of existence is necessarily spent in sleep that the location of the bed, the bed covering and bedding, and the furniture of the bedroom should be the subjects of consideration and thought. As it is, too often this is the last room considered. In many families a good-sized closet, with no opening into the outer air, is considered good enough for a bedroom. Not only should the bedroom be thoroughly ventilated and exposed to the rays of the sun, if this is possible, but the bedclothing should be taken off and hung in the air and sun for several hours before the bed is made up. It is a most injurious practice for a child to sleep with an adult, but it is equally bad for a strong, vigorous child to sleep with a delicate, nervous one. The stronger person may sometimes draw strength from the weaker, but usually this is reversed, and the more vigorous person is the sufferer.

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In Russia, when a man becomes a baron, all his sons and grandsons, too, become barons also.

PRODUCTION OF CORK.

J. H. Maiden suggests (*Agricultural Gazette*, N. S. W.) that cork is an article of sufficient importance for the plant yielding it to receive more attention in the British colonies than it has hitherto done. In Algeria, where the tree is largely cultivated, it is said to yield a rich revenue to the state. The tree is not well suited for private speculation, since until it is twenty-five or twenty-seven years old it does not produce any return; but then every five years it may yield from 70 to 100 pounds of marketable cork, which improves with each stripping. Until a tree is thirty or forty years old it does not yield acorns, and they soon lose their power of germination, especially if exposed to a great degree of cold. They are generally sown with seeds of *Pinus maritima*, to afford shelter, and prevent extreme variation of temperature, the pines being removed as space is required, and paying the expenses of the plantation until the cork is produced in paying quantity. Mr. Maiden offers five hundred young plants in lots of twelve without charge, for experimental planting, provided reports are made in two or three years of the probable suitability of the tree to the district where it is sent.

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THE ROLE OF THE LIVER AND SPLEEN IN THE DESTRUCTION OF BLOOD CORPUSCLES.

A series of experiments were undertaken by W. Bain (*Jour. of Physiol.*, June 15, 1903), for the purpose of determining the changes which occur in the blood when it is passed repeatedly through the liver and through the spleen, and then of determining the influence of these organs upon the blood corpuscles. In a series of survival experiments on the liver and spleen, it is shown that these organs retain the power of destroying the red and white corpuscles of the blood. The action of the liver is mainly one upon the red corpuscles, those poor in hemoglobin being the ones chiefly affected, a fact proved by the increased hemoglobin value of the corpuscles after perfusion. Of the hemoglobin set free, most is retained by the liver and further destroyed, since the loosely combined iron of the liver, as determined by the ammonium sulphid test, is largely increased after perfusion; since the amount of iron in the dried liver rises from .14 per cent. to .26 per cent., and since the liver secretes a considerable quantity of bile rich in pigment during the course of the experiment. The main action of the spleen is upon the leucocytes, which are largely destroyed by it during the perfusion. The variety chiefly affected is the polymorphonuclear. The spleen in addition destroys a small percentage of red corpuscles, since their numbers are diminished, their hemoglobin value increased, and loosely combined iron is found in the perfused spleen in a greater amount, than in the normal spleen. In these survival experiments on the spleen, the nerves retain their excitability for a very considerable time after removal of the organ from the body.

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THE STATISTICS OF LONGEVITY.

The average age at death under existing conditions is forty-four years and nine months, taking males and females together. On analyzing the returns, however, we find that women live some three years longer than men, a fact which is easily explained when one reflects upon the greater mortality among male infants and on the greater exposure of men to atmospheric and traumatic vicissitudes, to say nothing of the greater mental wear and tear to which they are subjected. The most satisfactory feature of these statistics, we are told, is the evidence which they afford of the gradually increasing longevity of the human race. The gain in the average duration of life at the end of last century, as compared with the beginning, amounts apparently to no less than thirteen years, and the process of "prolongevity" is still going on—that, at least, is the first conclusion arrived at from the study of vital statistics. But another explanation is forthcoming of the rising average of the age at death, viz., a decreasing natality. The principal factor in reducing the average duration of life is, of course, the relative and considerable mortality among the young; consequently the smaller the number of children comprised in a given population the higher will be the average age at death. Now, a decreasing natality is a progressively marked feature of all civilized communities, and as this becomes more and more marked in years to come there will, of course, be a corresponding reduction in infantile mortality and a generally higher age at death of the population as a whole. Pushing the argument to its logical conclusion, when there are no more children, the mortality will progressively diminish until, when the then generation has passed away, there will be no mortality at all. Statistics evidently require to be handled with discrimination, for they do not always, on close scrutiny, bear out the deductions one is tempted to make.

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MEDICAL TRIUMPHS YET TO COME.

Scientific medicine is only in its infancy. Its progress will prolong more and more markedly the average age of life by removing the diseases that play havoc during childhood and adolescence. For example, cholera infantum, the terror of mothers during the second summer, has within the year delivered up its cause to a medical student (Duval) of the University of Pennsylvania, working under the direction of Prof. Flexner. With the examples of Vienna and Munich before us we realize the fate of typhoid fever, which proves the pitfall of so many an ambitious adult. With typhoid will disappear its most notable sequela, gallstones.

When the organisms themselves cannot be directly handled, the source of contagion will be learned, and the diseases thus avoided. Our now constant enemies, tonsilitis, influenza and tuberculosis will find it impossible to progress when people realize the uncleanliness of handkerchiefs and come to the use of paper napkins. Diphtheria and whooping-cough (and probably other diseases) will have one source of contagion removed when pet dogs and cats are kept away from children or carefully held within doors. Inventions outside the province of medicine will be by no means without influence. We have every reeason to believe from analogy that flies are a frequent medium of transferring contagious diseases. Flies breed, practically, only in stables, and the replacing the horse by the automobile means their extermination.

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INGENIOUS MILK ADULTERATION.

A Greek publication gives an interesting description of an ingenious method of milk adulteration practised in Athens. The residents have a penchant for goats' milk, and herds of these animals are led along the street by milk-sellers wearing long blouses with capacious sleeves. Their cry of "Gala! Gala!" brings the housewife to the door, and she prudently demands that the goats shall be milked in her presence. This is done, but the milkman has in one hand the end of a thin tube which runs up his sleeve and connects with an india-rubber receptacle full of water, which is carried under his ample blouse. At each pressure of the fingers on the udder there is a corresponding compression of the water sack, and the milk and water flow side by side into the milk pail.—*St. James Gazette.*

PHOTOGRAPHS OF THE MOON.

The brightness or intensity of the lunar image, and consequently the time of exposure necessary in securing the photograph, depends upon both the diameter of the lens or mirror of the telescope and its focal length. When we increase the focal length of our telescopes, in order to secure a larger lunar image, the brightness or intensity of the image is greatly diminished, and the necessary exposure of the photograph correspondingly increased, unless the diameter of the lens or mirror is increased in the same proportion as its focal length.

There can be little doubt, however, that by the use of a very long telescope, of between one hundred and two hundred feet focal length, and of moderate aperture—say of twenty-four or thirty inches—much finer photographs of the moon and planets could be secured than have yet been obtained.—G. M. Ritchie, in *Harper's.*

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A TESTIMONIAL.

"Sirs: We fed our baby on modified cow's milk the first six months, but the milkman did not understand how to modify his cow properly, and in consequence the child lost flesh till he weighed but one pound. I now procured some of your celebrated Infant's Food. This the baby managed to trade off to the dog for some dog-biscuit, which he ate, and is now well and hearty. The dog died, but dogs are cheap. We are grateful to you, indeed. You may use my name if you like. John Jones."—*Detroit Journal.*

Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE MINERAL, ANIMAL, VEGETABLE AND SPIRITUAL KINGDOMS OF FOOD.[1]

INDISPENSABILITY IN HEALTH—CAUSAL AND CURAL IN DISEASE—IMPOSSIBILITY OF LIFE IN ONE KINGDOM ALONE.

By Ephraim Cutter, M.D., LL.D.,

New York.

Continued from September Gazette.

3. *Vegetable Kingdom Food.*—Botanic food would be a better term, as popular usage limits vegetables to potatoes, squashes and such like. Wheat, the king of cereals, is a vegetable, because it is a grass.

No one disputes the indispensability of vegetable kingdom food, hence our words as to this division will be directed to vegetarians who come out squarely and declare that the food of no other kingdom should be eaten because, for example, St. Paul said: "If meat make my brother to offend, I will eat no meat." * * * Now, I have no wish to interfere with those that thus speak for themselves, but I do object to their laying down this law to others because the said quotation was begun, "Now, as to things offered to idols"; because a little further on Paul said: "Whatsoever is sold in the shambles that eat"; because cattle are mentioned from Genesis to Revelation; because before the deluge vegetarianism did not produce all saints, but many sinners, who were drowned in the flood for their wickedness; because Jehovah ate both vegetable and animal food as Abraham's guests. (See Genesis 18); because Jesus Christ must have eaten animal food at the Passover of His time; because Christ after resurrection cooked fish and bread over a fire of coals at the Sea of Galilee and invited six apostles with Nathaniel to breakfast (R. V.), Himself being a waiter for them; because God commanded (Deut. 14:4): "These are the beasts that ye shall eat"; because God said (Deut. 12:15): "Thou mayest kill and eat flesh in all thy gates"; also Gen. 9:3: "Every moving thing that liveth shall be made meat for you" * * * * also "whatsoever parteth the hoof and is cloven foot and cheweth the cud, that shall ye eat"; because Peter was thrice commanded to eat flesh of all kinds when he had objected thrice; because he (II Peter 2:12) speaks of "natural brute beasts made to be destroyed"; because Paul speaks of those, "commanding to abstain from meat which God created to be received with thanksgiving"; because the Jews have used animal food from their earliest history; because John the Baptist ate locusts and wild honey (surely this exhibit authorizes animal kingdom food); because animal food alone in active life can be lived on longer than any other food;[2] because tuberculosis has been produced by feeding healthy animals on fermenting vegetable food, and some have been cured by animal food; because I have never known a case of nephritis or Bright's disease cured by vegetable kingdom food; because others and myself have known albuminuria, renal casts and fatty epithelia to be removed by food from the animal kingdom;[3] because of cases like these: About eighteen years ago a lady with albuminuria, renal casts and fatty epithelia in the urine, and with oil in the blood and fat in the leucocytes, was treated mainly on good, sound lean beef. All these stigmata are not found now, and she has been called the smartest woman in her town.

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[1] A lecture at the College of Physicians and Surgeons at Boston, April 27, 1903, from the Chair of Clinical Morphology and Applied Medicine.

A man rejected twenty years ago by a life insurance company was similarly treated, and remains cured. The above company has him now as a risk; because animal food has cured incipient cataract. One case 87 years old. Cataract is a fatty degeneration. A pet dog fed on starches and sugars in one family developed cataracts, plain to unaided vision from the largeness of the pupils. Fed in another family on animal food for some months the dog's crystalline lenses were clear. Dr. S. Wier Mitchell, Dr. B. W. Richardson, of London, and the writer have produced double cataracts in frogs by immersion in syrup. The latter observer found an hour and more was needed, while the distinguished compeers succeeded in less time. Dr. Richardson said in ten minutes. These experiments are easy to repeat by any one. The artificial cataracts can be seen without glasses. How can we do away with animal kingdom food?

4. *Spiritual Kingdom Food.*—A few verses from John 6, show the highest scope of this kingdom. Verse 48: I am that bread of life. 53: Then said Jesus unto them, Verily, verily I say unto you, except ye eat the flesh of the Son of Man and drink His blood, ye have no life in you. 54: Whoso eateth My flesh and drinketh My blood has eternal life; and I will raise him up at the last day. 63: The words that I speak unto you, they are spirit and they are life.

Vegetarians can find here no support for excluding animal food. Please read the whole chapter, noting how Jesus fed about 5,000 men, besides women and children, with five barley loaves and a few small fishes! This spiritual kingdom includes in this wide sense the intellectual, perceptive and mental. Among these foods are the Bible, music, literature, science, history, art, poetry, newspapers, etc. It goes without saying that this kingdom cannot be dispensed with in time nor eternity. Great care should be taken that man's spiritual food is good, sound, clean; that man should not eat spiritual chaff, sawdust, poisoned words; that man should not starve himself as to this food kingdom, and should remember that music is a spiritual food, found in heaven, a universal intellectual pabulum that is eaten beyond the realms of time; that there is bad music food and good; that music is one of the best mental athletics; that music confers force (dynamics, I like better); that good music heals in sickness and disease, cures insomnia, quiets intestinal commotions, and will enable a patient to control for a time fecal evacuations; that music cures colics, crural cramps, congestion of nerve centers during panics and great dangers; that music directly strengthens the heart and vaso-motor nerves, increases the exhalation of CO_2, promotes blood circulation, osmosis nerve force, helps digestion; that music rests the sympathetic nervous system so as to ease the tire of the sensory nerves that have stolen dynamics from the sympathetics; that music opens up more avenues to the soul than phonation; that it is not a mere pastime; that it is not true that musicians are a degraded profession, as the following lists shows. From the Bible: God is represented as singing with joy in Zeph. 3: 17. Our Saviour sang at the last Passover before they went out to the Mount of Olives.

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[2] The only exception I have found where vegetable food exceeded beef was reported in the Religious Encyclopedia, published in New Hampshire, 1835. Some sick English army officers were captured in India and imprisoned for several years on a sole diet of rice and water. They were freed in perfect health, and found themselves advanced in rank, as their superior officers had died. If my vegetarian friends have other instances, please give them. Remember, the argument here is that man *should live on all the four kingdoms of food.* It may be said that the prevalence of leprosy in rice eating countries, and its non-prevalence in animal food eating countries, favors animal food. Those who disagree are asked to petition the United States Government to feed healthy men solely on the foods in question each by each and let the results decide.

[3] Indeed, I might say that I found these evidences in my own urine in 1889. That I have kept for years, and now keep a daily record of my urinology and food; that almost invariably vegetable food solely fed me brings back sad evidences, one or all, after animal food has eliminated them, so that I am here an interested witness convinced that my life depends on my eating animal food, and that if I followed vegetarians I should die.

Moses sang, and he is the only human composer whose music is sung in heaven. King David not only sang, but wrote psalms and music to them, invented and played musical instruments, and yet he was one of the richest kings. According to Josephus, the thousands of talents buried in his tomb were so many that Herod rebuilt the temple partly from this sepulchral treasure. David also was a great general and warrior. Slew in his youth Goliath with a sling, and also a lion and bear with his bare hands. David's songs are used in Jewish and Gentile churches.

Paul (one of the greatest men of the world) and Silas sang. To come to later days, Luther sang. King Canute also. James G. Blaine had music to comfort him in his last illness. One of the late Czars had trombonists play at night during his Bright's disease. So hideous was the music to his special physician that he ran away from his royal patient and had to be recalled.

Vegetarians do not dispense with spiritual kingdom food when they publish commands restricting all food to the vegetable kingdom. They must have read their own writings in the newspapers and also the Bible and other books.

To sum up, no one ever knew of vegetarians not breathing, not drinking water, not using salt, nor eggs, milk, butter, cheese—though placing kine and hens in the vegetable kingdom violates language, science and literature. Nor are they known to refrain from the spiritual kingdom food, hence they have no right to dictate to others rules that they can't keep themselves, and break with every breath they draw. And when vegetarians prohibit the best means of curing diseases such as fatty degeneration of the heart, etc., they are doing a positive harm to the profession of medicine.

Equitable Building, 120 Broadway.

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DIETETIC TREATMENT OF ACNE.

THIS annoying and intractable disease taxes the skill of the physician to the uttermost. A recent writer in the *Post Graduate* thus sums up the dietetic rules which should be observed in every case:

"The first consideration in the treatment is the diet, and the articles usually found prejudicial include, candy, cake, ice cream, pickles, cucumbers, cheese, nuts, oatmeal, hot bread, pastry; fat meats and greasy foods of all description, such as pork, goose, duck; fried things in general; made-over dishes, such as hash and croquettes; sausage, saltmeats and salt dried fish, lobsters, and crabs; salads, cabbage, cauliflower, turnips; alcoholic and malt liquors; tea and coffee, unless strictly limited.

"Of course all articles enumerated are not objectionable in every case, but special inquiry and observation will alone determine when one or more may be permitted.

"The diet should consist of wholesome food, properly prepared and served at regular intervals. The food should be thoroughly masticated and eaten slowly: a rest of half an hour should follow each meal.

"I find it is well to give to the patient a list of articles permitted as well as prohibited, and something like the following:

"Oranges, grape fruit, peaches, grapes (juice only), stewed fruits.

"Pure water, weak tea (English breakfast), Postum cereal, cocoa, chocolate.

"Dry toast, milk toast, stale bread, brown bread, soda crackers, graham crackers, shredded wheat (browned), well cooked wheat preparations (wheatena, germea, cream of wheat), rice.

"Eggs, soft boiled, shirred, poached, scrambled; broiled steaks and chops; roast or boiled beef, mutton, lamb, venison; roast or broiled chicken, turkey (white meat); stewed young chicken; squab, quail, partridge, pheasant; sweetbreads (boiled or baked); oysters and clams, raw, roasted or stewed; fresh white fish, boiled, broiled or baked, fresh butter.

"Broths, beef tea, consommé, thin soups (not greasy or heavy).

"Lettuce, spinach, kale, turnip tops, green peas, beans, celery, asparagus, young carrots, baked or creamed white potatoes, baked sweet potatoes, oyster plant, boiled onions, tomatoes, stewed corn.

"Plain rice or tapioca puddings, jelly desserts, baked apple, stewed prunes and stewed dried fruits (with little or no sugar)."

[We do not see any reason for interdicting nuts and oatmeal. Nuts generally get a black eye from dietists simply because they are eaten as a dessert and after the subject has already eaten a sufficiency of other foods.—Ed. Gazette.]

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NEW FOOD PLANTS IN YUCATAN.

The gardens and fields of Yucatan are filled with succulent vegetables and odorous herbs unknown to the outer world. In the cultivated fields, at the proper seasons, are grown classes of Indian corn, beans, squashes, and tubers for which we have no name, for the reason that we have never seen or heard of them.

The forests and jungles contain fruits that, excellent even in their wild state, could be made delicious by scientific care and cultivation. There are half a score of wild fruits that offer more promising results than did the bitter wild almond, the progenitor of the peach.

It is my purpose to bring to notice these promising subjects for cultivation in a series of reports made with the object of attracting the attention of those interested in this line of research and practical work.

The writer holds himself in readiness to supply any person who, or society which, desires the seeds or roots mentioned in these reports for the purpose of study, making only such charges as will cover the actual expense incurred.

The most important of the large cereals is the maize of the Mexicans—the Indian corn of the Americans, and the ixim of the Mayas of Yucatan. Like several other vegetable products, its origin as a cultivated plant is enveloped in obscurity, the wild plant from which it was evolved not yet having been identified. Many believe that the cultivated plant was born somewhere between Yucatan and the tableland of Mexico. The mother plant was probably a grass, and the new grain spread to all sections, each one giving it certain characteristics, until the varieties grown in the North hardly seem related to those of the southern lands.

Yucatan has six varieties of this grain, and the Maya Indian reverently speaks of it as the "grace of God."

The large-stalked, large-grained class known to the natives as xnuc nal (pronounced shnook nál) is the most prominent and has by far the greater acreage devoted to its cultivation on the peninsula (Yucatan). It is planted in May, and when matured is left to harden and season until gathered as needed. This class most nearly resembles our Indian corn. It has both the white and yellow grains. Under the haphazard methods of the native Indians, the corn produces in the limestone soil of Yucatan from 20 to 30 bushels to the acre. Under favorable conditions, this yield is often doubled.

The "xmehenal" (shmehenál) is a small, quick-growing variety, about the size of our pop corn. The plants are rarely four feet high, and the natives have a saying that the cock can pick the flowers of the true xmehenal without stepping off the ground. One variety matures within sixty days of its planting, and the second needs but fifteen days more.

The xmehenal (shtoop), planted in May, can be gathered in July, and, while the production per acre does not quite reach the figures of the xnuc nal, it has a greater capacity of resisting the extremes of heat and dryness.

The natives of Yucatan prefer the native corn to that imported from the United States, and will cheerfully pay the higher price demanded in times of scarcity. They state that our method of kiln drying injures the grain. They allow the grain to harden and dry slowly in the ear upon the stalk.

The plant, or rather the running vine known as the macal box (makal bosh), produces a tuberous root of great nutritive value. Entire families have lived upon this root for weeks at a time and were healthy and well nourished. This plant is very productive. About the middle of May the green shoots first appear above the earth. They grow rapidly and in November are ready to be dug. The tuber is about the size of a large Irish potato and is of a purplish color, like a certain class of sweet potato. It can be cooked in the same way as the sweet potato. The plant is hardy. A long drought may cause the vine to wither, but with the lightest rain it springs up anew. The roots left in the ground as too small for food propagate the plant, and each year the yield increases. It seems to be a kind of native yam; it grows in almost any kind of moderately rich soil, and when cultivated intelligently should be of certain value as a food. The xmakin macal (shmakeén makál), like he macal box, appears in May and is gathered in November, but it yields only one or two tubers to the plant. These, however, are of large size, resembling enormous Irish potatoes. I have seen four of these great roots fill a bushel basket. The interior is white and seems to be nearly pure starch. It is planted as we set out potatoes. The plants grow close together, and, while I have no exact figures, the yield per acre should be phenomenal so far as weight of product is concerned.

Xmehen chi-can (shmehen chikan) seems to be a kind of artichoke, weighing when matured about a pound. The plants are running vines, rarely more than a yard long. An acre will yield an immense crop under favorable conditions. The plant, sown in August, can be gathered in November.

Xnu chi-can is a larger root, weighing when mature about three pounds. It is a hardy plant and produces well. Both of these roots are eaten roasted or boiled, and many like them raw. Some of the roots sent with this report as specimens are not of the sizes given, as they have been by force of circumstances taken out of season.—CONSUL EDWARD H. THOMPSON, *in Sanitarian.*

⁂

THE COCKROACH AND TYPHOID FEVER.

THE Cincinnati *Lancet-Clinic* thus considerately but emphatically protests against overdoing the matter of attributing the spread of infections to insects only:

As long ago predicted in this journal, the various tribes of insects are being held responsible for the spread of so-called contagious diseases. At first it was the order of *diptera* (two-winged) flies and mosquitoes that carried terror to the hearts of that portion of humanity that has nothing to watch but its own health and hails each new fad, even although an entomological one, with infinite delight. The fly has had its innings in typhoid fever, the mosquito in malarial and yellow fever, the flea (but that belongs to another not manifest order, the *aphiniptera*) engenders anæmia. The *coleoptera, orthoptera, neuroptera, lepidoptera, hemiptera, aptera* and *hymenoptera* offer a new field for microbian exploitation. The fleas and wasps that belong to the latter class are known to carry warm tails, and their stings have been even recommended for rheumatism.

We were taught at school that the mosquito was eminently a blood-sucker, that it imbibed the sanguinary current from the juicy human hide for its stomach's delectation and its own assimilation, but it appears we reckoned without our host in those halcyon academy days. At present, according to the Marine Hospital savants, the mosquito is built on the plan of a hypodermic syringe; it first imbibes the sanguinary fluid from a diseased victim, then with malice prepense and aforethought, injects it into the body of some innocent and unsuspecting human being who has neglected to put up a mosquito bar. So it has come to pass that when the dulcet notes of the mosquito are borne on the soft zephyrs of the summer those who believe in microbian doctrines wonder, while the insect intunes its musical nocturne, whether it is the deadly anopheles or the other fellow. Of course, to admit that a healthy insect becomes full of a toxin from an unknown source is to admit that the first case of disease originated *de novo,* and this is to admit the doctrine of spontaneous generation, that is at variance with modern Pasteurian views. But, as usual, we digress.

A Miss Rosa Engelman, in the June number of the *Druggists' Circular,* gives a very interesting analysis of a house epidemic of typhoid fever occurring in Chicago, and tracks the transmission of the malady to the perfidious cockroach, the fragrance of whose aroma so often enchants the Schneiderian membrane with the incense of its rank odoriferous perfume. Rosa is very ingenious in her argument, and far cleverer in all respects than many of the investigators who claim to have tracked epidemics to flies and mosquitoes. We congratulate Rosa on her discovery that cockroaches are as much carriers of typhoid as flies. No one ever doubted that insects, like cats, dogs, rabbits, parrots and canary birds, could carry disease. We called attention several years ago to a volume published in the eighteenth century on "Insects as Carriers of Contagion." It was admitted, centuries ago, that old pants and coats were capable of carrying contagious diseases in certain cases. It was even admitted that dust might carry infective *non novem sub sol.*

Let bacteriology continue to affirm that each disease has its so-called germ, and this is *sui generis;* then let it prove that such forms of microbes are noted in the bodies of animals and insects. It is now in order to prove that smallpox is due to bed bugs, but if this is proved it is only logical to admit that bed bugs may carry measles, scarlet fever, mumps, syphilis, gonorrhea, diphtheria, etc., although few have the audacity to claim that they have seen the real causative agent of any malady, and it is notorious that the most contagious maladies are those in which no special microbe has as yet been discovered. As before said, however, it is just as logical to admit that a suit of old clothes —or new clothes for that matter, made in a sweat shop where smallpox prevails—may carry a contagion as well as any insect. No one will doubt the logical premise on which such a conclusion is founded—at least we would not.

No physician, we believe, but has seen an original case of prurigo associated with a crop of lice. Yet we have seen lousy heads with no prurigo. It is not logical to conclude, then, that lice are really the causation of the disease. Such reflections are apt to make the most pronounced microbian scratch, but "God bless the Duke of Argyle!" and a prophylactic post to rub against.

That modern bacteriology has soared to empyrean heights none can gainsay. Under the bright sunlight of fame how resplendent are the names of those that shine as bug experimenters; this glory is only equalled by the inventors of serums, who, seated on the medical Olympus, gaze down on the human hosts that stand with uplifted eyes, beaming with gratitude for the privilege enjoyed of an organic prophylactic injection.

After all, who would disturb the day dreams of those wise medical men who beat the green calabash filled with new beans—the big medicine men who fight off the little air devils with rattles and other aboriginal science. Under the medical tepees hang the scalps of the thousands whom their serums failed to cure. Let the big medicine men keep up their pow-wows, and give to the benighted earth more healing charms and antiseptic amulets. Let the world bow before modern microbology and be-deed.

* *

ACTION OF GRAPE JUICE ON THE ORGANISM.

The grape is composed of various constituents which give it its value in the so-called grape cure. Water, grape-sugar, cream of tartar, tartaric and malic acids, albuminoids, various minerals, as potassium salts, lime, magnesia, the oxides of iron and manganese, a little silicum and alumina, also certain acids, phosphoric, sulphuric and nitric. There are traces of chlorides and a small quantity of soda and phosphates. The seeds contain tannin. Grape juice from its constituents is a veritable mineral water. In taking the grape-juice cure, the quantity at first taken is small, and is gradually increased, the length of the time of treatment being from three to six weeks. Walking and exercise in the open air assist very much in bringing about good results during the time of this cure. The general health is improved, the appetite is increased, and the digestive functions are greatly improved. The patient usually puts on flesh. This cure is especially indicated in affections of the digestive organs, visceral congestions, ascites, jaundice, in cases of hepatic calculi, diarrhea, habitual constipation, in certain skin troubles, and in neurasthenia; pulmonary tuberculosis is benefited by this treatment, but the intestines must be in good condition. It seems contraindicated only in persons who are too fat or who have a tendency to become so, and during the period of menstruation.—*Gazette Heb. de Med. et de Chirurg.*

* *

THE HORRORS OF THE TRAILING SKIRT.

The vogue of the bicycle has departed, and with it the fashion of wearing short skirts. The skirt is an encumbrance to freedom of movement at the best, but the short skirt was much less of an encumbrance than the trailing garment which robes our women to-day. Its inconvenience is, however, but a trifling consideration as compared with the great hygienic dangers which every woman faces who trails her garments along the streets.

Dr. Casagrandi, of Rome, stated that he had employed a number of women wearing long skirts to walk for one hour through the streets of the city, and after their promenade was over he had taken their skirts and submitted them to a careful bacteriological examination. He found on each skirt large colonies of noxious germs, including those of influenza, tuberculosis, typhoid fever and tetanus, and numerous other bacilli which also were represented on each skirt.

That women should willingly submit themselves to the filth, to say nothing of the possible danger, of trailing skirts has long been a wonder to sensible people.

The ordinary sticky mud which prevails in the streets of any city adheres closely the moment a garment touches the ground. It dries in the course of a few hours and is then shaken off when the skirt is cleansed at home. Thus the vilest germs of the street invade the privacy of the best-kept houses. —*The Healthy Home.*

* *

EXPECTS ANOTHER FLOOD.

In a recent number of the *N. Y. Times,* Dr. Cottrell makes some rather startling suggestions:

An article appeared in the *Times* under the heading "Advance of the Atlantic," by Mr. Daniel S. Martin, commenting upon a previous article, in which he says that the Atlantic Coast is sinking. This I do not believe can possibly be going on. The steady encroachment of the sea is not confined to this Atlantic Coast alone, and is more perceptible on the coast of France, which is traced to a great law in nature. The great seas are filling up. Every time it rains millions of tons of earth are being displaced, and the great common carrier, water, is dumping it into the seas, and the laws of gravitation are the displacing conditions. Take a bowl of water and pour sand into it and you will displace the water, and have a bowl of sand. These are the conditions that are slowly but surely going on all over the earth, so that it is only a question of time when the mountains will be washed to the seas and the seas displaced in other channels. New continents are being formed in the great seas.

The Sandwich Islands are one great illustration that thousands of acres are being added to the islands every ten years by volcanic action while other continents are being formed by the accumulation of gases in the earth and giving vent to such accumulation. Nearly every week we get reports from ships' captains of great disturbances at sea under the head of "tidal waves." That the compression of gases under the seas would be greater than under the land surface is readily understood. The great natural conditions slowly going on will not only destroy Boston and the State of Massachusetts, but will treat New York and every other portion of ground higher than the seas in the same way. The laws of gravitation are the same all over the earth. Everything in nature blooms and goes back to rest.

The inhabited portion of the earth will be no exception, and when the laws of gravitation have washed the mountains to the sea, excessive evaporation and condensation will produce another flood.

* *

LEARNING AND AGE.

Men of thought have always been distinguished for their age. Colon, Sophocles, Pindar. Anacreon and Xenophon were octogenarians. Kant, Buffon, Goethe, Fontenelle and Newton were over 80. Michelangelo and Titian were 89 and 99 respectively. Harvey, the discoverer of the circulation of the blood, lived to be 80. Many men have done excellent work after they have passed 80 years. Landor wrote his "Imaginary Conversation" when 85; Isaak Walton wielded a ready pen at 90. Hahnemann married at 80, and was still working at 91. Michelangelo was still painting his giant canvases at 89, and Titian at 90 worked with the vigor of his early years. Fontenelle was as light-hearted at 98 as at 40, and Newton at 83 worked as hard as he did in middle life. Cornaro was in far better health at 95 than at 30 and as happy as a sandboy. At Hanover Dr. Du Bolsy was still practising as a physician in 1897, going his daily rounds at the age of 103. William Reynold Salmon, M.R.C.S., of Cambridge, Glamorganshire, died on March 11, 1897, at the age of 106. At the time of his death he was the oldest known individual of indisputably authenticated age, the oldest physician, the oldest member of the Royal College of Surgeons, England, and the oldest Free Mason in the world.—*Chambers' Journal.*

* *

CHANGE OF AIR.

The quasi-miraculous benefits which are associated with change of air in the popular belief are in reality derived when they accrue from change of environment, *qua* change of habits of life. In a great many instances the measure of benefit obtainable would be as effectually secured, and at much less expense, by mere change of habits, without the fatigue and inconvenience of change of domicil. The overwrought city clerk might advantageously take to driving a cab, while the cabman would find it a relief to discharge for a time the functions of caretaker of a deserted house. Many an overworked physician would experience a distinct improvement were he to qualify as a chauffeur, with no other object in view than to cover space, and there are few domestic servants whose health would not be sensibly modified by a brief experience as milkmaid or gleaner, should the season lend itself to that pursuit. The "literary gent," whose brain is sterile of new ideas, might recuperate his energies by usurping the role of a sick man and remaining in bed for a week or two.—*Medical Review.*

ALWAYS SOMETHING TO LEARN.

President Eliot was arguing in favor of education by "showing how" before the kindergartens. He said that he was learning something every day by being "shown how."

He illustrated his point by describing the training of medical students, and concluded by telling of an old friend of his who had suddenly become deaf in one ear.

"How did it happen?" I asked him.

"Well, I was blowing my nose the other day, when I felt something snap in my ear, followed by an aching and dulness.

"When the doctor came he said the drum was split, and asked how I did it.

"'I only blew my nose,' I told the doctor.

"'Well, had you opened your mouth when you blew your nose you would not now have a damaged ear-drum,' was the medico's reply.

"You see, my friend had lived seventy years and had never been shown how to blow his nose," continued President Eliot. The application was appreciated and greeted with a great burst of laughter.—*Boston Journal.*

⁂

PINCHED VANITY.

Go into the glove department of a leading dry goods store and see a lady with her elbow on a show case and her hand in the air, while another lady massages the fingers of that hand for about half an hour in order to get on gloves that are several sizes too small, but must be forced on in order to protect the delicate hand from summer heat and to prevent it from expanding to normal dimensions. Did you ever see such a sight?

Did you ever see a person who made every possible effort to force his or her feet into shoes that were two sizes too small, and that developed corns and bunions on the feet of the wearer? Do you know any people who take pride in forcing the delicate organs of the body into one-half their normal space in order to gratify vanity? How comfortable one must feel with the hands, feet, and body encased in such inelastic material during these nice summer days. We Christians send missionaries to the barbarous and savage races to teach them theology; they might well send missionaries among us to teach the "Art of Keeping Well," by permitting the body to develop normally. Vanity distorts the feet of Chinese and the bodies of Christians. Such unwise devotion to the goddess Vanity is the chief cause for the latter part of the toast:

"Woman—God's greatest gift to man, and the chief support of the doctors."

⁂

EGG IN FELON.

The skin of an egg has been recommended in felons, but does not seem to be very efficacious. Dr. Whitman, in the *Medical Visitor*, says that for the last fifteen years he has used the whole egg and has yet to see a case it will not cure, if it is a real bone felon. He uses it thus: Take a fresh egg and crack the shell at the larger end, making a hole just large enough to admit the thumb or finger, whichever it may be, and forcing it into the egg as far as you can without further rupturing the shell. Wipe off the egg which runs out, and bind round the whole of a handkerchief or soft cloth; let it remain on over night, and generally the felon is cured; if not, make another application. Dr. Whitman has yet to see the case where it has failed, and would be pleased to hear from any one trying this where it has not cured.—*Med. Times.*

⁂

PHOTOGRAPHING THE EMOTIONS.

Dr. Hippolyte Baraduc, of Paris, has devised a method by which he claims to be able to photograph the emotions. He says: "In every case the same emotion makes the same kind of impression upon the plate. Different emotions invariably make different photographs. Some of these photographs resemble the milky way. White spots appear in star-like clusters, or in some instances shaped like a comet. Other feelings, love, for instance, make a series of indistinct blurs upon the plate. A few are represented as an explosion of fireworks or as a mass of twisted tubes of light, the latter generally double." Dr. Baraduc should try his method in America right after an election.—*Med. Standard.*

⁂

PUSHED BY POTATOES.

One morning early we began to plant the shrubs. "Where will ye have the rosy dandrums?" was my greeting from Thomas as I entered the garden. Having noticed from the breakfast table that he had slyly buried something at the bottom of each hole prepared for the planting, I waited my chance the first minute he was out of sight, dropped on my knees, felt around in the soft soil at the bottom of the hole and unearthed—a potato. Another hole and still another was examined. Yes, there was a potato in each; he must have wasted a bushel!

"Thomas," I said, when he had returned with a load from the compost heap, "what are these potatoes doing down here?"

"Divil a tree will grow in Oireland without wan," he explained.

"How is that?" I asked, in darkest ignorance.

"Ye see, mum, the patatey sprouts furst off, thin, begorrah, it lifts the loife into the tree and obliges it to push up forninst."

As a matter of fact, we did not lose a tree or shrub, in spite of the long drouth.—*Country Life in America.*

⁂

TROUBLE FOR THE PROOF-READER.

"If you think that I am going to pay you a penny for this advertisement of mine in your measly old paper, you are mightily mistaken, my friend," said an irate business man as he slammed down a copy of the *Morning Reveille* on the counter in the business office of the paper.

"What is the matter with the advertisement?" asked the business manager of the paper as he came forward.

"I'd ask what is the matter, if I were you! What I wrote was 'A fresh invoice of dairy butter every day.' Will you just cast your eye on that ad. of mine and see what you have printed!"

The business manager "cast his eye" on the "ad." indicated and looked for a place of safety when he read—

"A fresh invoice of hairy butter every day!"—*Lippincott's.*

⁂

A SNAKE IN A STREET CAR.

But the snakes with whom I have generally associated have mostly been the little chaps, such as the lively two-foot garter snake that I had in a Kansas City street car one day. I had picked him up in the suburbs of the city, and before taking the car back to the business section of the town I buttoned him in the inside pocket of my coat. Now, anybody who has ridden over the streets of Kansas City knows that in places it seems as though the cars were climbing up the roof of a barn. When I got on the car it was full, and so I had to grab a strap in order to stand up. Presently a seat became vacant beside me, and I sat down. As I did so I glanced up, and there was my poor little snake hanging to the strap I had just left. Various other people noticed him at the same time, and the ensuing exhibition would have enabled any person in the car to secure a job as a circus acrobat at a handsome salary. After they had escaped I put the snake back into my pocket. The conductor was a hero, and stuck to his post, but he put me off the car and kept my nickel.—*Outing.*

⁂

HYGIENIC SELF-CULTURE.

"Perfect health—that is, abundant vital power capable of resisting all causes of disease or depression, and sustaining by sympathy the health, energy and spirits of others—depends," says a great physiologist, "upon the large development and cultivation of the region of health and animation. It requires a large development of the shoulders and the crown of the head. The true science of health," he also says, "is connected with ethical or religious science and the performance of duties; and all hygienic science which rests in the physical alone will fall short of human needs. The emotional and spiritual part of man's nature is as important as the physical."—*American Medical Monthly.*

* *

Among the food products most liable to adulteration, and which we trust will be forwarded to the laboratory for examination, are low-priced grades for ground coffees, prepared cocoas, canned goods, especially low-priced brands of sweet corn, baked beans and tomatoes, highly colored peas, etc.; condensed milk, cheese, especially soft cheeses put up in glass or tins, cheap confectionery, grape juice and other fruit juices sold for drinking, ketchups, old goods, cheap brands, highly colored goods, etc.; flavoring extracts of all kinds, cheap brands of olive oils, spices, especially mustards, peppers, gingers, cloves, etc.; vinegar, made or said to be made from cider; any food products which are sold below the cost of the genuine article.—*N. H. Sanitary Bulletin.*

* *

MISUNDERSTOOD.

"What started the fuss at the milkmen's ball?"

"Some blamed fool asked one of the men if he had brought his pumps along."

TESTS FOR COLOR BLINDNESS.

When once the existence of such a defect of vision as color blindness had been recognized, the importance of finding out how many locomotive engineers suffered from it was instantly recognized. Indeed, it is probable that the trouble was first detected in that very class of men, the inability of a few to distinguish red signals from green having led to fatal accidents.

For many years it has been customary in testing railroad employes for this weakness to use bunches of worsted. Three or four have the important colors which it is necessary to identify, and many others represent more or less confusing shades. Against the plan, which originated with Holmgren, and which has long been in favor, two objections have been raised. One relates to the possible needlessness of so many unnameable tints, and the other to the use of wool instead of a lantern. Every now and then it is affirmed that men who are not really color blind will sometimes be rejected after the Holmgren test, whereas others who passed their examination somehow will occasionally be found defective.

In a recent issue of *The Medical Record* Dr. Percy Fridenberg recommends the use of colored lights in addition to the bunches of wool. He then goes on to describe a lantern of his own, in which he has sought to reproduce on a small scale the conditions which practical railway service involves. He says:

"The colored glass used for the signals is made of standard red, green, blue, yellow and purple as supplied for switch lights on one of the largest railroad systems of the country. The lantern is in the form of an asbestos chimney like those used for retinoscopy. It may be lighted up by a candle, or, preferably, slipped over the glass chimney of an argand burner or the bulb of the incandescent electric light, and used in the dark room."

* *

LONEY HASKELL, at Keith's last week, repeated this:

"Tennyson or Longfellow could take a worthless sheet of paper, write a poem on it, and make it worth $500; that's 'genius.'

"Rockefeller or Morgan can write a few words on a sheet of paper and make it worth $5,000,000; that's 'capital.'

"The United States can take an ounce of gold, stamp upon it an eagle, and make it worth $20; that's 'money.'

"A merchant can take an article worth 50 cents and sell it for $1; that's 'business.'

"A laborer works eight hours a day and comes home tired for $1.50; that's 'labor.'

"A woman can purchase a hat for $2, but prefers one that cost $20; that's 'foolish.'

"I can write a check for $100,000, but it wouldn't be worth a nickel; that's 'tough.'

SUBURBS OF JERSEY.

THE Jesuit Fathers, until recently located at the Frederick, Maryland, novitiate, and now on the Hudson, near Poughkeepsie, had considerable trouble organizing for the big removal, and impressed into service one of the hotel janitors, who happened to be at the depot, to carry luggage. A passenger on a train going through noted the bustle of moving and asked where the Fathers were going.

"Up on the Hudson," said the janitor, picking up a grip.

The passenger noticed the initials "S. J." on the grip.

"What does that stand for?" he asked.

The janitor replied promptly—

"That's their destination—Suburbs of Jersey!"—*September Lippincott's.*

IN the famous suit brought by Whistler against Ruskin, in consequence of the latter's disparagement of the former's work, the case of the defense was put in a single question. How long, it was asked, had it taken Whistler to "knock off" the Graham "Nocturne in Blue and Silver?" The plaintiff, who was on the witness stand, replied that he had taken a day over the picture; or perhaps, he added, he might have added a touch or two the next day. He would answer, then, that he had spent two days on the painting.

Ruskin's counsel had got the opening he wanted, and pressed in.

"The labor of two days, then, is that for which you ask 200 guineas?"

"No; I ask it for the knowledge of a lifetime."

EMBARRASSING.

THE following story is told of a young man, who, it is said, was invited out to dine one evening recently. He sat opposite a mirror and discovered that he had forgotten to comb his hair. Then he dropped his fork, and as he stooped to pick it up he upset his coffee. Matters went from bad to worse, until finally the young man in despair quit eating and put his hands under the table. The loose end of the table cloth was in his lap. He touched it and turned pale. He thought it was his shirt, and that he had in his excitement while dressing forgotten to put the garment in his trousers. Afterward, when the family arose from the table, there was a crash. The dishes lay on the floor in a broken mass. The young man pulled three feet of table cloth out of his pants and broke for the woods.

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, OCTOBER, 1903

SCIENCE AND SENTIMENT.

SOMETIMES these go hand in hand and make a delightful pair. Oftener they wander wide apart and quite as strangers.

The recent studies of electric force are daily developing easy facts that only a few months ago were outright miracles. One enthusiast has pierced the eternal secret—can produce living matter from protoplasm and some modification of the current. Another is not quite so confident, but expects to be able to develop a definite kind of latent energy and produce definite quantities of gray matter by prescribing special and varying diets. Certain foods are to stimulate or energize certain sentiments and emotions. One is to be able to strengthen his moral principles and mend his dilapidated politics or neglected religion by ingesting only the food appropriate to each class of sentiments or ethics.

Several efforts have been made to harness the tides. Ericsson spent a fortune in his later years in a vain endeavor to bottle the sun's rays and eliminate the question of fuel supply; another genius announces that he has solved the question of power by a resort to the law of specific gravity. Water pushes cork to the surface. Harness the push and you have the power. When the genius comes along who can make any of these plausible theories commercial the problem will be solved, steam will lose its prestige, the coal mines can be abandoned and the energy from heat can go on a vacation, instead of being called upon to roll cars, turn wheels and light cities.

Radium and polonium promise too much, or would if it were not for the fact that there probably isn't enough of either in the world to supply a fair specimen to each of the scientific museums that are waiting to label and catalogue it.

The difference between the sentimental scientists and the scientific sentimentalists is hard to distinguish. Prof. Flammarion, the French astronomer, is a good illustration of the former, and one could easily recall a score of modern novelists who are fair examples of the latter. Both classes are entertaining, and to some extent enlightening; but neither of them adds much to permanent knowledge.

Is Mars inhabited, and what is an average Martian like? Does he go mad over the state of the stock market (canal shares?) or drive an auto? Does he keep a buckskin string hitched to his marriage certificate so that it can be snatched through the divorce court *via* Dakota on short notice? Does he eat late dinners at supper-time, fill his abused stomach with lobster salads, pate de foie gras, ice cream and black coffee, and then fall dead under the table from "acute indigestion, ptomain poisoning or heart failure? We have only to touch the button of curiosity and the fiction press gang does the rest, at the hundred-thousand-a-week rate.

Suggestion and hypnotism, occultism and Christian Science may all have some basis of logic behind them, but as a whole these unfound and confound a good many ordinarily sensible people. The practised swindler, whether lay or professional, low in depravity or lofty in moral pretension, avails himself of one or all of these systems to land his victims.

Is it all a mere mattter of varying the food elements, modifying the voltage of the cations or rearranging the scheme of contact and vibratory rhythm of the quondam atoms that are now subdivided into corpuscles?

Are the earth's poles steadily growing top-heavy with mountains on mountains of ice ready for another flop equatorward? Just when are we of the two temperate zones to be shifted to the antipodes or permanently sent into cold storage? None of the cults or occults can tell us, and about all we are sure of is that there's plenty of legitimate and creditable work within our immediate reach without wasting time on what may be but probably never will be.

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SCIENTIFIC PROGRESS AND THE PASSING OF THE PATHIES.

Of all the learned professions, that of medicine is the most conservative and at the same time most amenable to the spirit of progress. It clings to precedent and the past with a tenacity that is well-nigh fatal to intelligent evolution and advance, yet constantly advances because it must, because stagnation means death, and science cannot die. Its principles are the only constants in nature. Forms change; formulas are discarded; matter is motion; energy alone is eternal.

The atomic theory of Boscovich has been stored away in the museum of scientific memory as a fit companion to that of phlogiston. There is no longer any such thing as "a finite number of simple, indivisible inextended atoms endowed of the Creator with repulsive and attractive forces."

The discovery of argon, the X-ray, radium and polonium has upset all the old theories of matter and made obsolete most of the ancient and accepted postulates of science. The corollary of Anaxagoras that since space is infinitely divisible matter must be the same now sounds like the chemist's dictum of only a decade ago: "All matter consists of particles which do not suffer decomposition, whatever chemical influences the matter may be subjected to, all the atoms of each element having the same weight and form, while the atoms of different elements have unequal weights."

This postulate was based on "a thorough study of an immense number of chemical phenomena which can be satisfactorily interpreted only by its aid."

This chemist's atom has, therefore, never been other than a working hypothesis, an algebriac x of unknown value assumed in order to secure a mathematical *point d'appui* from which to project trains of scientific investigation.

Just now the theory that matter itself is merely a form of energy has a respectable and respectful hearing, but even the next decade—so rapid are the transitions—may paste it in the same album of scientific memories, reminiscences, traditions and superstitions, with phlogiston, the atomic theory and the philosophy of the "omoiomerists." Already it is being inferred—no one is conceited enough to any longer assert—that instead of diverse atoms matter is composed of ultimate units that are identical and uniform as to ponderability, size and character in all the so-called elements. All the late discoveries apparently corroborate this view, but no scientist cares to commit himself to the extent of proclaiming even this as a finality.

Is electricity life? Is the brain merely the original and organized Crooke's tube, and thought a scintillation from an organic cathode?

The currents evolved by Volta, Galvani and Faraday were embyrotic and hesitating. They required reagents and well-defined lines of travel. They halted at the commonest obstacles, and were impotent if not carefully "conducted," insulated and nursed. They were helpless in the air, and refused to pass through any but the most penetrable of so-called conducting material. Besides, they were of only moderate avail either for mechanics or medicine. The dynamo released them from their swaddling clothes and gave them courage and penetration. They no longer hesitate at uninviting or non-conducting material, but plunge through dry air, glass, rubber, silk and wool with apparent indifference. If vital force is not an organic manifestation of this omnipresent energy it is so closely allied to it that no available test of the astutest scientist can detect the difference.

D'Arsonval's announcement that the advent of the violet ray has inaugurated a new era in therapeutic science only reiterates Balzac's prophecy uttered two generations ago. Commenting on certain mental manifestations, this Latin Shakespeare declared that "This explanation will become a commonplace when men of science will recognize the great part played by electricity in human thinking power."

One scientist says the cathode ray is like a Mauser bullet—it stops at nothing. Many others are ready to believe that the atom is "only a complex of electrical forces;" that nature, the universe, the thinker and his thought, chemical affinity and the laws of valency, mathematics and the equations of the astronomers—all are homogenetic, merely variations in the direction, velocity and degree of the same omnipresent energy.

We may call it by whatever name pleases our present fancy, electric energy or cosmic force, zoögen or biogen, creative energy or God. Names signify nothing. One is as good as another.

So the schisms. They are all partial. Whether treating of medicine or morality, of ethics or ethnology, divination or demonology, they see but one side of multifaced nature, and the faiths, formularies and philosophy of their champions and exponents are based on partial data, and are therefore incomplete, incomprehensive and unsatisfying.

Medical pathies are dying because medical men are broadening their field of vision. No school or schism has all the truth; all the schools have some truth.

It is a part of the program of evolution and final destiny that the medical myopics should lose caste and drop behind because they are forever sailing their timid crafts in among the isles of shoals. Only those who have boldly launched themselves on the open sea of scientific truth, regardless of its source, heredity or prestige, can be called physicians in a broad-minded and progressive sense.

THE DOMINANCE OF PREJUDICE.

Even logic walks on stilts, and science occasionally wabbles.

The chemists and experts are ready to certify to both sides of the argument, each according to his personal bias.

Is alcohol a food? Yes, if I drink; no, if I am a teetotaler. Is nicotin a poison to the human system? Yes, if I belong to the anti-tobacco club; no, if I spend a dollar a day for clear Havanas. Are tea and coffee prolific sources of indigestion, headaches and "biliousness?" On the contrary, if I have been a devotee for forty years, more or less, they are dietetic necessities. I can do nothing until I have had my hot coffee in the morning, and tea is my only consolation after a hard day's work.

Human nature doesn't seem to be built on judicial and impartial lines. Men's palates, the gustatory and other senses, befuddle their brains. The tippler thinks of cocktails; the smoker sees everything through a cloud of smoke.

It seems to be both inevitable and universal.

It follows that we shall never be able to settle the question of narcotics, of alcohol, tobacco and coffee by "weight of authoritative opinion," because there is none. All the courts in session have written out their opinions in advance—before they have heard any disquieting evidence. The juries are all packed, or what is the same, committed. It follows that many of the physiological inquiries and hygienic conundrums will be compelled to petition for a change of venue.

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EDUCATION COMPLETED.

Ethel—"But, dear, you went to the cooking school only three months."

Mabel (of Boston)—"Oh, that was sufficient. I learned to brown beans to perfection and cook codfish in six different styles."
—*Chicago News.*

SAFER AT SEA THAN ASHORE.

Says Marvin Winthrop in the *National Magazine:*

Within ten years, thanks to better ships and better navigation, the death-rate of sailors has decreased one-half, and is now only 13 per 1,000, or 40 or 50 per cent. below the rate for all inhabitants of such cities as Boston, New York or Chicago—though, of course, such a comparison must not be pursued to its last analysis of why or wherefore, but taken for what it is worth as a sufficiently surprising statement of an actual fact. Out of 10,000 accidents reported to the Travellers' Insurance Company, 2,413 occurred to pedestrians and 1,880 to persons who were comfortably at home indoors. No fewer than 1,816 accidents were due to riding or driving, 689 to various sports, 406 to bicycling, and 477 to railway travel, while only 70 of these 10,000 accidents occurred on the ocean. Making all due allowance for the obvious fact that there are always many more persons walking, or indoors, or engaged in pastimes, or railway journeying than there are at sea, these figures are still significant.

One great steamship company, with 40 vessels, lost only one seaman in a year, and it was recorded of the celebrated Inman Line some years ago that it had conveyed, without one death, a million passengers. In the year 1890 the transatlantic liners made nearly 2,000 voyages from New York to the various ports of the United Kingdom and the Continent, carrying 200,000 cabin and 372,000 steerage passengers across 3,000 miles of boisterous ocean. And yet, in this entire year there was not one accident costing the life of a single one of these more than half a million people.

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MORE HISTORY REWRITTEN.

I.

Euclid was propounding a knotty problem.

"Yes," agreed his wife, "that's fine, but would you just glance at this time-table and find out when the nine-o'clock train leaves for Pidunk?"

But with a cry of baffled rage he dashed from the house.

II.

Isabella was nobly offering to pawn her jewels for Columbus.

"But," asked the great navigator, "why not let me take them on the ship and I'll soak them for you."

Touched to the quick by this gallant reply, Ferdinand put up the cash instead.

III.

Banquo's Ghost had just appeared on the scene when Macbeth fell into a paroxysm of terror.

"What's the matter?" exclaimed the frightened guests.

"Nothing, nothing at all," replied Lady Macbeth, forcing him behind the scenes, "somebody told him the cook was going to leave."

Reassured by this explanation the diners fell to.—*New York Sun.*

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Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

THE HEALING POWER OF THE SUN.

Dr. Kellogg treats of this important subject—and no one is more competent to speak—in a recent number of *Good Health:*

Man is naturally an outdoor animal. The tropics being his natural home, he lives in cold countries only at the expense of an enormous ontlay of labor, and probably also with a very considerable shortening of his life.

The value of outdoor life is best appreciated by those accustomed to sedentary life when opportunity is afforded for them to spend a few days in the open air. It needs no lengthy argument to demonstrate to such a person the value of continuous outdoor life as a health promoter. The value of such a life does not consist wholly in the purity of the air and the exercise, matters of great importance, but also in the cooling effect of the air in motion, and especially in the vitalizing influence of the sunlight.

The rays of the sun contain heat and chemical rays as well as light rays. The heat rays act powerfully upon the glands and vessels of the skin, while the chemical rays influence the nervous system in a remarkable way. It is the chemical rays which cause so-called sunburn.

The sun is the source of energy to the world. The marvelous energy manifested in plant life is derived from the sun acting upon the green parts to organize and vitalize the elements of the earth and air into living substances. The same energy of the sunlight is essential to animal life, invigorating and vitalizing the tissues and quickening all the processes of life. The sun bath is now a well-recognized and much-valued therapeutic agent.

In this form of treatment the whole body is exposed to the direct action of the sun's rays. Persons who are not accustomed to exposure to the sun, and individuals who have light hair and light skins, should make the first exposure to the sun of short duration—ten or fifteen minutes. Longer exposures are likely to produce sunburn. No particular harm is done by sunburn excepting the inconvenience occasioned by it. The pigmentation of the skin induced by sunburn protects the skin from further injury in this way.

The body may be exposed either in the open air or before a window. When the sun's rays are so intense that the heat is depressing, the heat rays may be filtered out by means of a blue-glass screen placed between the patient and the sun.

After the sun bath, a cold plunge, a cold shower, a cold towel rub, or a wet-sheet rub should be administered to tone the skin and the nerves.

In the summer time in a hot climate the sun bath may be very conveniently taken in an outdoor gymnasium. A sand pile furnishes a most appropriate couch, as the heat which it accumulates may be utilized as an aid to induce perspiration when this is desired.

Every home should be provided with a convenient place for taking the outdoor sun bath in summer time, and sun bath indoors during the cold season. Civilized human beings suffer greatly because of the seclusion from the sun occasioned by modern modes of life. Those who reside in cities, like the cave-dwellers of the olden time, are by their opaque walls and shaded windows, almost excluded from the sun. The results are shown in the pale faces of old and young, the rickety children, the growing prevalence of consumption and other constitutional maladies, the increase in deformities and degenerations, and other evidences of race deterioration. Out-of-door life and a return to the simple habits of our ancestors, is the only way in which the race extinction to which we are at present rapidly hastening, can possibly be averted.

The sun bath is useful in almost every form of disease in which an acute febrile process is not present. It is especially valuable in neurasthenia, all forms of dyspepsia, rheumatism, diabetes, gout, skin disease, and chronic maladies of every sort.

By means of special appliances, the actinic rays of the sun and of powerful arc lights may be separated from the heat and light rays and by concentration upon diseased parts with lenses are utilized in the cure of skin cancer, lupus, or tuberculosis of the skin, acne, psoriasis, or dry tetter, and other superficial diseases of the skin.

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THE YELLOW FEVER GERM.

On this subject the *N. Y. Tribune* has this to say:

That which constitutes the chief feature of the Marine Hospital Service report on yellow fever, made after a study of that disease by a special commission in Vera Cruz, is its statement regarding the probable cause of the disease. It is asserted that no definite signs of a germ were found in human subjects, but that a parasite was observed in mosquitoes, which had been infected by biting patients. This organism, which is credited to the animal kingdom, has apparently been found in all the different stages of its development in the bodies of those insects.

While these declarations will probably not be accepted as final, they are in closer accord with the opinions of other experts than were earlier utterances of Marine Hospital Service physicians. Two of the latter, after a visit to Havana in 1898, practically confirmed Sanarelli's discovery of a bacillus to which yellow fever was held to be attributable. Simultaneously, the medical department of the United States Army discredited the reality, or at least the influence, of such an organism as that which the Italian described. The late Major Walter Reed did, to be sure, mention seeing small, sluggish objects resembling amœbæ (and hence living) in the blood of patients, but they were not bacilli, and, as he could find them in healthy persons as well, he was much in doubt as to their relation to the disease. He was ready to affirm that mosquitoes conveyed the fever from one man to another, but he hesitated to say how they were able to do so. Possibly when the organism observed by the Marine Hospital Service Commission last summer is compared with Major Reed's, they will not turn out to be identical. Again, Major Reed observed his suspect in the blood of patients, while the visitors to Vera Cruz are not willing to declare that they did. Both agree, however, in describing a protozoan, or animal, parasite.

From these circumstances and others which might be mentioned it is excusable to doubt whether the real germ of yellow fever has yet been detected. It may be too small to be identified readily. Such an explanation was once advanced to account for the failure to find a germ of cancer, although that disorder seemed to be contagious. Here, for instance, is a suggestive incident, reported by army surgeons in Washington. The blood of yellow fever patients, bottled in Cuba, was brought to the United States and put through a Pasteur filter. The grain of the porcelain in that article was so fine that it would stop corpuscles and all bacilli that have thus far been recognized. Subsequently two persons were inoculated, the first with the corpuscles and other solid residuum, and the second with the filtered fluid. It is affirmed that the former showed no ill effects, but that the latter developed the fever!

While the case for Major Reed's amœba is not a strong one, and his caution in putting any responsibility upon it is praiseworthy, it is possible to reconcile the apparently conflicting testimony which he furnished. It is well known that the germs of malaria abound in the blood of persons who exhibit no other symptoms of the disease. Thousands of people carry the bacilli of the grip in their nasal passages without succumbing. It is conceivable that the healthy individuals in whom Major Reed found suspicious objects may have been immune, and that the latter really were sources of danger. In like manner seeming inconsistencies in the findings of the Marine Hospital Service Commission may yet be cleared up. If the conclusions of that body are not as full as could be wished, they may nevertheless afford a useful clew.

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A NOTABLE VICTORY OVER THE PLAGUE.

The *Medical World* thus compliments the Government on its effective campaign against the plague in the Philippines:

Truly, "Peace hath her victories no less renowned than war." While our sturdy soldiers have been chasing the wily and elusive "little brown men" through the Philippine jungles, and trying to shoot civilization into them, our army surgeons have forced into some of them an idea of cleanliness they will not soon forget. The plague is endemic in Hongkong, China, which is but two days' voyage from Manila. Hence the plague was a perpetual menace to the Philippine Islands. It first appeared in 1899, and the infection spread steadily, there being 199 deaths in 1900 and 432 in 1901. Then our army medical department went to work. Only a miracle could suppress an epidemic in 1902, it seemed; but hard work of the right kind is the next best substitute for miracles. Early in the campaign it was found that the most strenuous efforts at improving the sanitary condition of the city were nullified by the filthy habits of the lower classes of Chinese and Filipinos. The well-known activity of the rat in distribution of the plague being considered, it was deemed advisable to attack the rodents. Traps and poison were distributed, and a special force of rat-catchers, with distinguishing uniform, organized. Police and sanitary agents co-operated, and in all 60,000 rats were caught, and many hundred thousand more were destroyed by poison. As the rats were caught they were tagged with the street and number where they were taken, and the bodies turned over to the bacteriologists for examination, and 40,666 were examined *post mortem* for the plague bacillus. Thus the authorities not only knew to what extent the disease had extended among the rats, but also by the tagging system, where it was most virulent. During the first two weeks 1.8 per cent. of rats examined revealed the existence of the disease, and the ratio steadily increased till in October 2.3 per cent. showed the presence of the bacilli in the glands. The buildings where infected rats were found were fumigated as carefully as where infected human beings were discovered, and where disinfection was not possible, the buildings were burned. A special plague hospital was improvised with accommodations for 1,500 patients. Frequent house-to-house inspections were made of the infected districts, by April, 1902, the time when an epidemic would be supposed to have reached its acme or virulence, the diseased rats were exterminated. The Board of Health next devoted its attention to immunization of the susceptible natives, and inoculated over 25,000 between January 15 and March 15. The Shiga antipestic vaccine was employed and was furnished to the extent of three hundred doses daily by the government laboratory, but so great was the demand that it was necessary to call on Professor Kitasato, of Tokio, for additional supply, and 50,000 doses were secured from him.

Thus was scored a most remarkably successful warfare against disease; a combat waged by doctors for humanity—a glorious record. The *National Geographic Magazine* says: "If it had not been for the tireless vigilance and ceaseless war on rats and filth by Dr. Meacham and his associates, a wave of the plague would have swept over Manila and the islands as destructive of life as the cholera itself. The United States has driven the bubonic plague out of the Philippines as completely as it has swept the yellow fever out of Cuba." All honor to the courageous and able man who planned the campaign and carried it to victory.

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LATEST ABOUT BRAINS.

Observations on the Relation of Skulls to the Mental Powers.

The *London Express* says:

Man's curiosity is naturally boundless concerning his brain, which is believed to be the seat and the token of that mental power which makes him the undisputed king of the earth. If the brain were really such a box of drawers as some phrenologists have assumed, with everything in its place and all possible faculties accounted for, human heads could be classified as readily as plants, and nobody could fail to distinguish between them any more than one can fail to select roses from lilies.

One might predict absolutely from a glance at his head that a given young man must become a great financier or a poet or a philosopher, with no more danger of a mistake than in asserting that one tree will produce acorns and another apples. But the shrewder sort of phrenologists see that this will not do, and so they endeavor to modify the bases of their science to suit the infinitely varied facts of human nature and development.

The real progress in brain study is made by those who undertake the work, as far as possible, without any preconceived and preperfected theory to lead or mislead them. Dr. H. Mantiegka has recently published in the "Proceedings of the Royal Scientific Society of Bohemia" some remarkable observations on the relations of the weight of the brain and the size and shape of the skull to the mental powers of man.

These investigations show the importance of good feeding to brain development. The brain cannot do its work without an abundance of pure, well nourished blood. Other things being equal, a heavier brain implies greater mental power, and Dr. Mantiegka finds that persons employed in industries where the nourishment of the body is apt to be insufficient and the muscular exercise slight, show, as a rule, higher brains than do more favorably circumstanced persons.

Blacksmiths and metal workers in general have heavier brains than coachmen, but the latter exceed carpenters in brain weight, and carpenters exceed persons employed in clothing industries, while at the bottom of the scale stand those who are engaged in the manufacture and sale of alcoholic drinks, who are apt to do more or less drinking themselves.

It would also appear that the weight of the brain may be increased by the direct exercise of its own function, men of mental training showing, as a rule, greater brain weight than others. It should be remembered that the size of the head cannot be taken as a trustworthy index of the weight of the brain. The organic quality is the main thing.

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THE WORDS WE KNOW.

Vocabulary of the Wayfaring Man Figured out by a System.

The *Indianapolis Journal* thus discourses:

There often appears in print an item which reads somewhat like this: An ordinary man will say everything that an occasion calls for with a vocabulary of 1,000 words. Of these he commonly uses but 400 or 500, reserving the remainder for the emergency of an idea out of his usual line of thought.

In accordance with this is a statement once made by a speaker at an educational meeting: "The best educated person in this room will not use more than 600 or 700 words." And he added that an ignorant man would not use more than 300 or 400. Some years ago a writer in *The Chautau-*

quan said: "It is estimated that an English farm hand has a vocabulary limited to 300 words. An American workman who reads the newspapers may command from 700 to 1,000 words. Five thousand is a large number even for an educated reader or speaker." This is a step forward, yet it still seems a far cry to Shakespeare's vocabulary of 15,000 words, or even to Milton's 9,000.

Any one may, with a little trouble, estimate the number of words whose meanings would be plain to him in print or in speech. Of the writer's vocabulary an estimate was made in this way: An abridged dictionary was used because almost all unusual words would thereby be at once eliminated.

Under each letter of the alphabet a page or more of words was selected at random and counted. A separate record was kept of primitive and derivative words. That is, among the former was put measure; among the latter measurable, measurableness, measurably, measured, measureless, measurement, measurer, unmeasurable and unmeasured. Compound words, whose meanings were clearly indicated by their component, were omitted; as, clockwork, draughthorse, hard earned. Counting this way, an average of twenty primitive and thirty-five derivative words was found on each page. This would make, there being 814 pages of vocabulary in the dictionary, a total of 16,240 of the former and 28,490 of the latter, or almost 45,000 in all.

Next was taken a page in each letter, and on it were counted the words which it seemed any person of average intelligence would be able to use and understand. On twenty-four pages there were 268 primitive words and 221 derivative, or nearly 9,000 in all of the former and more than 7,000 of the latter. And lastly was made a count of very common words, such as even a poorly educated person could hardly escape knowing, and they were found to number 5,700 primitive and 3,200 derivative. No proper names were included in any of the countings.

It would therefore seem to follow, if what we are told of the vocabularies of Shakespeare and Milton be correct, that a person of average education to-day knows at least as many words as did the former, and one whose school opportunities have been quite limited is capable of walking beside the latter in this respect. As regards ideas and ability to express them, however, the difference may be worldwide.

The foregoing facts seem to warrant these general conclusions. Every well read person of fair ability and education will be able to define or to understand as used nearly or quite 50,000 words, or perhaps more. And the same person in conversation and writing will command not fewer than 15,000 to 20,000, and can add 5,000 to 10,000 to these numbers if he be literarily inclined. The plain people, as Lincoln liked to call them, use or read understandingly from 8,000 to 10,000 words, according to their general intelligence and conversational power, while a person who cannot read, but has a good degree of native mental ability, will command about 5,000.

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THE RELATION OF NEURALGIC HEADACHES TO STORMS.

S. Weir Mitchell states that the originating causes of hemicrania are as yet unknown. The determining causes of the separate attacks have never yet been made clear enough to enable the victims to avoid them by precautionary measures. Eye-strains are rarely the primary trouble, but may add to the number and exaggerate the force of attacks. Freedom from exhaustion of mind and body is most apt to lessen the number of headaches. It is very probable that atmospheric conditions play an important part in the production of this form of pain. Certain migraines are due to storms, but not, as a rule, to the summer electric storms, which, nevertheless, in some hysterical women are sure to occasion a general headache, distinct in character from hemicranial attacks. The writer presents a chart on which are drawn two curves, the one representing the storm curve, the other the headache curve. March and April are the worst months and October and February the best. There is among later writers a quite general belief that the storm winds favor the production of headaches.—*American Medicine.*

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DISINFECTION BY LOCAL BOARDS OF HEALTH.

THE N. H. *Sanitary Bulletin* pertinently sums up this important subject as follows:

The present law makes it a duty of the local board of health to disinfect premises at the proper time after a death or recovery from certain quarantinable diseases.

Occasionally we receive a communication asking what we would recommend for a general disinfectant. For the past three years formaldehyd (or formalin), by the shèet process, has been used very extensively by boards of health in this state, in disinfection after all kinds of diseases, including many cases of smallpox, and with the greatest satisfaction.

Judging from a large experience, we believe that there is no method surpassing this in its efficiency and simplicity. There is no occasion for expensive apparatus, lamps, or anything of the kind. The method recommended is as follows:

The room to be disinfected is sealed and prepared as usual for sulphur disinfection. All its surfaces are exposed as much as possible; closet doors are opened and their contents, together with the contents of drawers, are removed, scattered about, and the drawers left open; mattresses are set on end, pillows, bedding, clothing, etc., are suspended from lines stretched across the room or spread out on chairs or other objects so as to expose all sides; books are opened and the leaves spread—in short, the room and its contents are so disposed as to secure free access of the gas to all parts as fully as possible. Upon this preparation largely depends the thoroughness of the disinfection.

For every thousand cubic feet of space in the room is suspended, by one edge, an ordinary bed sheet (2 x 2½ yards) from a line stretched across the middle of the room. Properly sprinkled this will carry without dripping eight (8) ounces of formalin—the forty per cent. solution of formaldehyd—which is sufficient to disinfect one thousand cubic feet of space. As many sheets as necessary are used, hung at equal distances apart. The ordinary, rather coarse, cotton sheet should be used in order to secure rapid evaporation.

The sprinkling is done by means of a spray producer, as it is found by long experience that the freest evolution of the gas, with the minimum production of paraform, is secured from very minute drops of the solution individually scattered on the evaporating surface—not touching or running together.

When all is in readiness in the room, the disinfector ties a damp towel over his mouth and nose, and, beginning with the sheet farthest from the door of exit, rapidly sprinkles each sheet on his way out, being careful to spray evenly and no space more than once.

The evolution of the gas is so rapid that the air becomes irrespirable in about three minutes, so that quick action is necessary. It has also been found necessary to provide the operators with surgeon's rubber gloves to protect the hands and wrists from the spray.

The room is left closed not less than five hours, after which it is opened up as freely as possible to light and air; the family is instructed to have all woodwork well scrubbed with soap and hot water or with the mercuric-chloride solution, and the furniture and other objects thoroughly wiped off with cloths dampened with dilute formalin, one part formalin, twenty parts water.

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LAPSES OF MEMORY.

How to Live is quite given to publishing good things, and among them we find the following:

Now and again the medical and scientific world is startled by the announcement that persons who have mysteriously disappeared at some stage in their career have as suddenly returned and emphatically asserted that they have neither knowledge nor memory of their whereabouts during more or less extended portions of their absence. While such things are possible, they cannot fail to awaken in the mind of the student of human nature the gravest doubts as to the veracity of those who claim to have had such experiences. But the few who have studied deeply into the intricacies of the complex bit of machinery which we call the body have become conscious of the fact that we know but very little about life and its hidden springs and motives. When a piece of shell can pass entirely through the body, tearing great holes and seemingly disintegrating the vital parts, and the victim recovers; when the prick of a cambric-needle is sufficient to cause death; when a man can fall hundreds of feet and survive his injuries, and his neighbor slips on his doorstep and is killed by the fall—it is time for the presumptuous critic, who says that he does not believe anything that he cannot understand, to be carefully enclosed in a strait-jacket and placed where people of his ilk belong. Of course it is possible for persons —a few and only a few—to carry on a course of deception for a long period. But it requires the most continuous and wearing strain to keep up a dual personality and successfully engineer a course of this kind.

A great preacher once said that it took a man with an excellent memory to be a liar and a deceiver. He must under no circumstances forget himself, even for a moment. The slightest slip of the tongue, the most trifling action, oftentimes the expression of the face, would be quite enough to betray the secret so carefuly hidden. In the same line of reasoning it follows that those who would impose upon their friends and the public by claiming to have forgotten many things must have clear heads and such an excellent memory that they can remember to forget everything that passed during the time which they declare is a blank to them. Modern science has demonstrated that even a very slight blow or even sudden physical or mental shock is sufficient to create congestion or affections in certain parts of the brain, and may wholly obscure some portion of the mental faculties. And this cloud may continue until the swelling, congestion, pressure, or whatever may be the exciting cause has passed away. If phrenology is an exact science, as its advocates claim, then the patient should undergo an immediate examination for injury to that portion of the brain which is supposed to be the seat of memory. Taking it for granted that these theories are correct, some lesion or pressure would certainly be discovered. It would be strictly in order to treat persons who have suffered from mental obscuration as though they were really ill and to put them under a thorough course of medical scrutiny, in order to determine just what their malady is, to the end that others who suffer from similar causes may be benefited.

While sensible, rational patients have no patience whatever with deception and fraud, it ill becomes even the most opinionated layman to criticise those who suffer from mysterious ills. The fact that they are little understood and surround the victim with an atmosphere of doubts and suspicion ought to make the true philanthropist more gentle in his judgment.

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GLYCERIN: A VALUABLE BUT NEGLECTED AGENT.

THE *Medical World* thus calls attention to a very common but not fully appreciated remedy:

It is strange that the many valuable virtues of glycerin are so little known or appreciated by the profession. Despite its cheapness and efficiency, it has been almost entirely relegated to the realm of domestic medicine. The general practician, in whose hands it would be of daily use in a variety of ways, seldom uses it.

It does not evaporate, nor does it become rancid or undergo fermentation. Added to a mixture of fluid extracts, it prevents precipitation. It has remarkable solvent powers: iodid of potassium, iodin, bromin, iodid of sulfur, chlorids of sodium and potassium, the alkalies, some of the alkalin earths, many of the neutral salts, the vegetable acids, morphin, quinin, strychnin, veratrin, atropin, and carbolic acid are all freely soluble in gylcerin. It has decided antiseptic properties. In the dose of a dram at meal time it promptly relieves acidity of the stomach, pyrosis and flatulence. Mixed in equal proportions with cod-liver oil, and flavored with tincture of cinnamon, it makes a very acceptable method of administration. Applied to the nares with a brush, it relieves coryza. Given internally it is of service in acne. A few drops on the tongue will relieve laryngeal cough in children and adults. In low typhoidal conditions, when the tongue and lips have been neglected until sordes have accumulated, a few drops on the tongue affords an evident amelioration of the annoying mouth and throat symptoms. An ounce of glycerin and four ounces of infusion of flaxseed injected into the rectum, with or without the addition of morphin, will relieve rectal tenesmus in dysentery and allied conditions. In fissured nipple, Stillé highly commends a dram of tincture benzoin added to an ounce of glycerin and filtered. Dropt into the ear, it softens hardened cerumen so that it is easily syringed out. It quickly renders an insect in the ear so helpless that it will remain quiet till it can be removed. It is a valuable aid in disguising the taste of many offensive medicines, and may be added to any prescription to increase its "body." The glycerite of starch affords an admirable vehicle with which to apply astringents to the eye, and is considerably used by ophthalmologists.

These are but a few hints from which the practician will readily evolve many more uses for this agent. Many more costly drugs could be displaced if the doctor knew how to use glycerin.

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HOW ACORNS MAY BE USED.

Acorns may be gilded or silvered with good effect if a twig with several fine specimens and two or three leaves is selected. The nuts should be removed from the cups and replaced with a drop of glue, or they are apt to drop out when dry and spoil the cluster. The leaves should be caught to the stem with a very fine thread of wire, as they too are given to parting company with the twig at inopportune times. A broad, medium-sized brush and some rather thickly mixed gold paint will then complete a most effective ornament for Christmas tree use, or to lighten up a lamp shade of dark rich tones, or a mass of sombre drapery.

Another way of making use of the acorn cup is to remove the nut and substitute for it a velvet emery cushion of just its size and shape, and of any color desired. A drop of glue supplemented by a stitch or two with doubled buttonhole twist of the color of the cup, taken directly from the base of the little cushion through the center of the cup with the ends tied firmly in a tiny knot will keep the emery in place till doomsday. Two or three of these tied together with narrow ribbon make a pretty and useful item in work-basket furnishing.

The seed balls of the sycamore and sweet gum are very ornamental when gilded or silvered and tied with bright ribbons in festoon-like clusters.

Pine cones, especially the small grown seed repositories of the spruce, easily lend themselves to such an arrangement. With their ray-like tops cut off they are good for rustic box making, the tops being set close together, and glued firmly all over the outside surface of the box.

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NEURALGIA.

What is neuralgia? Neuralgia is the name we give to pain of a paroxysmal nature running along the course of a nerve, and existing entirely independent of any disease in the nerve.

Neuralgia has a great variety of causes. Its successful treatment depends entirely upon a knowledge of the particular cause.

A night's debauch will plunge every nerve in the body into a neuralgic state. The vital powers are prostrated, the brain and nerve centers congested, the nerves on edge, the patient irritable, unable to eat, sleep, rest, or apply himself in any way. He needs a diffusible stimulant and nerve tonic to quicken his circulation and brace his nerves. Strong medicines, drugs which produce any amount of reaction, will fail in these cases. Repeated mild stimulation—that is the program.

Cold is a very common cause of neuralgia. Exposure to draughts, getting the feet wet, excessive dampness, etc. The indications are plain. Equalize the circulation, restore the activity of the skin and other secretions. Counter-irritation over the affected nerve.

Emotional causes are responsible for many cases of neuralgia. Anxiety, worry, disappointment, etc., keep the brain in a feverish, exhausted state, with which the nerves sympathize. These cases require a simple calmative, which will tranquillize the mind, and subdue the emotions, enabling the patient to get some rest, and recuperate.

EXCESSIVE FATIGUE,

whether physical, as among athletes, or brain fag, as the result of prolonged mental effort, produces very similar symptoms. They are not, however, to be treated on the same principle.

The exhausted body needs a calmative to compose nerve centers which are unable to govern themselves, but continue to send out erratic impulses, keeping the physical members hot and quivering, so that repose and recuperation are impossible.

The tired brain may be the result of a too one-sided life. Regulation of the habits of such a patient, more outdoor life, more fun and frolic, with a mild nerve stimulant, will soon lift the gray pall from his faculties, and still those nagging pains.

Much loss of sleep is a cause of neuralgia, and is relieved by the use of a good hypnotic.

STATURE OF JAPANESE.

We are not surprised to learn that the Japanese are steadily, even rapidly improving in physical development, as is the nation in general advancement. The following record comes from the *Sei-I-Kwai Med. Journal:*

Surgeon-Captain Nakamura, of the Hiroshima Army Division, has sent an important contribution to the *Jiji* on the question of the stature of Japanese. The Surgeon's article may be regarded as definitely solving this important question, and the solution is at once reassuring and such as might have been expected. The view expressed in the *Jiji* by another writer several months ago that the physique of the race is advancing with the progress of the nation in general, is borne out by the data which Surgeon-Captain Nakamura has been collecting for years past in the course of his work as a conscription service examiner. The data covers the period of eleven years ending 1902, and is therefore sufficiently comprehensive to admit of generalization. And the general conclusion which the Surgeon draws from his data is, as above mentioned, entirely reassuring, demonstrating as it does that in the matter of height at least the Japanese are making steady, almost systematic, progress. Here are the data:

	Per Cent.				
	5.4 shaku and over.	5.2—5.4 shaku	5.0—5.2 shaku	Below 5.0 shaku	Number of men examined.
1892	10.06	31.84	37.92	20.17	348,337
1893	10.09	31.79	37.94	20.21	381,557
1894	10.12	32.03	37.88	20.00	379,706
1895	10.48	32.43	37.52	19.45	386,613
1896	11.18	33.68	37.20	17.94	423,178
1897	11.48	33.99	37.02	17.50	401,952
1898	11.43	33.49	37.31	17.79	421,652
1899	11.73	33.96	36.89	17.42	420,200
1900	12.41	34.43	36.52	16.65	412,831
1901	12.54	34.81	36.33	16.31	428,784
1902	12.67	35.06	36.07	16.20	431,093

The number of men examined comprised all the young men who had reached the age liable to the service in the respective years, only those who, either on account of illness or deformity could not be measured, being excluded. Therefore the data obtained in the conscription service examination supply the most reliable materials for determining the physiques of the people.

The data given above proves that the number of those who measure 5.4 *shaku* (5 ft. 4½) or above and 5.2 (5 ft. 1 7-10) to 5.4 *shaku* is steadily advancing, and that the number of those coming under the two shorter headings is gradually declining. In 1902, for instance, those who measured above 5.2 *shaku* numbered 42 out of every 100 examined, and the corresponding number increased to 44 in 1902. On the other hand, the number of those whose height was below 5.2 *shaku* decreased from 58 to 52 during the same period.

The Surgeon remarks that a tall stature does not necessarily imply a strong constitution and that physically short, stout bodies are preferable to tall feeble bodies. The absence of reliable data recording the bodily weight is therefore very much to be regretted. However, so long as proofs are not forthcoming that the Japanese have lost in muscle and sinew in proportion as they have gained in height, this increase in the stature must be taken as a sign of the development of the national physique. The Surgeon concludes his article with a short piece of sound advice to our countrymen. It is that they must endeavor to further promote the healthy tendency of which his data discloses the existence.

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GET-HEALTHY-QUICK CONCERNS.

Collier's Weekly thus relieves its mind on this subject:

The steamers are bearing away hundreds of Americans to the "get-healthy-quick" concerns of Europe. Some will go on starving diets, others on stuffing diets; some will drink vast quantities of water, others vast quantities of milk; some will take the "perfect-rest" cures, others the "incessant-exercise" cures. And all will be vastly improved in appearance and will leave their respective "get-healthy-quick" concerns without a grudging thought about the money they have been relieved of by the hordes of bandits that run "cures." The time is not yet, but neither is it far distant, when cynicism will get a hearing on this matter of "cures." In days of old a robber went forth to rob. Nowadays, a robber of the first class has his open habitat precisely like the honest citizen and remains in it and hangs out a sign and has great difficulty in attending to the throngs that pour in to beg him to relieve them of their goods. He is usually keeping either a "get-rich-quick" concern or a "get-healthy-quick" concern. At bottom the two industries are the same. They rest rock-founded upon the universal delusion that something can be had for nothing. A man who has obviously abused his health for forty-six weeks of the year does well to devote the remaining six weeks to intelligent repentance for his physical sins. But he is not "as good as new" again, and if the "cure" has wrought any benefit beyond what fresh air, sensible eating and regularity will effect anywhere, it has wrought it at the expense of his vitality. Further, instead of having set him in the way of permanent good behavior, the "cure" has encouraged him to think he can do as he pleases and can always return to find the health of youth again.

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MANY BOOKS FOR THE BLIND.

We are indebted to the *Phila. Press* for the following:

"I went into the free library the other day," said the observant citizen, "and wandered into the department for the blind. I was amazed to find the number of works it contained, and some investigation gave me a lot of very interesting information.

"I find that there are about one hundred thousand blind persons in the United States and that the printing of books for them has reached such proportions that a bill was introduced into Congress a few months ago providing that these works shall go free through the mails.

"More than that, I learn that the government has already made an attempt to help this class by annually giving the interest on $250,000 to the American Printing House for the Blind at Louisville, Ky. I have seen a statement by Mr. Boutell, of Illinois, in which he says that this yearly sum of $10,-

000 is used for printing these books and distributing them among thirty-two public and private schools for the blind. The principals of these schools form a committee which decides what works shall be published.

"A dictionary makes eighteen volumes and costs $50; a Bible, eleven volumes, for $7, and an English grammar sells for $10.

"I find also that there are three weeklies and one monthly paper for the blind."

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ORIGIN OF SLANG.

Plain Statements of Great Truths Made by the People.

Says the Indianapolis *Jour. of Biochemistry:*

Great truths are always sensed and crudely expressed first by the common people.

Why should one ever say, "No matter"? At first blush there seems to be no relevancy whatever between the idea to be expressed and the phrase used. But chemistry, the court of last resort, has demonstrated that so-called matter is "no matter," but simply a phenomenon or manifestation of energy. Is it any wonder that "no matter" has been a common expression for years?

"Catch on" is quite a popular and "catchy" slang phrase, but I think it must have been borrowed from the cultured Emerson, for you remember he commanded you to "hitch your wagon to a star," and there is really no difference between "catch on" and 'hitch on."

The slang phrase "we are in it" has been the catch word for some time, as well as "we are up against the real thing." Of course, we are in, and up against the universal substance all the time, for " in it we live and move and have our being." Surely it is the real thing, for it is the only substance known. There is nothing else to be in or against. It is the "real thing."

"You are not the only pebble on the beach" is a slang phrase that clearly foretells the coming age of the concept of the unity of being—or co-operation instead of individualism. In fact, the expression is a direct and loud protest against selfishness and vanity, and frequently has a greater and better effect than a sermon.

"Out of sight" or "way up in G" refers to the real spiritual man—a higher note or vibration than the ordinary or material plane of operation. Spiritual intelligences are "out of sight" to most people, or to all who are not clairvoyants.

"The whole show," or "he (or she) is the whole show" is clearly seen to be a truth to those who really understand that man is the epitome of the universe—a microcosm of the macrocosm—and that the kingdom of heaven, or harmony, is really within his possibilities, conceptions and operations.

"He is a crank" expresses a great truth. A crank is the part of a machine that turns or moves the machinery, and the personal crank is the fellow that helps move the world. It is an honor to be called a "crank."

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CHLORETONE IN THE TREATMENT OF SEA SICKNESS.

By C. H. Wilder, M.D.,

De Kalb, Ill.

Sea sickness is no respecter of persons, and nearly every one who has occasion to make trips on the ocean or the great lakes falls an unwilling victim to this distressing condition. The list of remedies that have been exploited from time to time as cures or preventives is suspiciously long, and my purpose in adding one more to the legion is simply to call attention to the great success that has attended its use in my practice.

Case 1. John G., one of a party of several persons who journeyed to England and back, received from me a number of five-grain capsules of Chloretone to be used experimentally in preventing the occurrence of sea sickness and possibly to bring about relief if this dread condition should occur.

Upon his return, Mr. G. reported that the experiment had been attended with great success. Some of the company had become ill and Chloretone had speedily cured them. Consequently, the remaining members of the party demanded doses of the drug which evidently did the work required of it, inasmuch as they did not become sick during the whole voyage, and those who had been ill remained well during the remainder of the journey.

Case 2. O. V., of a neighboring city, before starting on an ocean trip last fall, at my advice took two hundred five-grain capsules of Chloretone with him. Upon his return he related a most interesting tale. He said that the people were hunting him from all parts of the ship to buy some of his wonderful remedy. He told me that people who had been sick for twenty-four hours would be relieved and would keep well shortly after commencing to use the drug. As soon as the victims would feel the least bit dizzy or nauseated he would give them one capsule and repeat the dose in fifteen minutes. This procedure invariably gave relief.

My advice in both of these cases was never to swallow the capsule whole, but to empty the powder onto the tongue. I also prescribed a tablet containing aloin, 1-5 grain; extract of belladonna leaves, 1-8 grain; strychnine, 1-60 grain; powdered ipecac, 1-16 grain, to be taken at each mealtime to regulate the bowels. This last precaution I thought quite essential, but it was the Chloretone that did the work. Since the return of the last party I have received several inquiries from England for the prescription for my remedy for sea sickness, as certain people intended to come across the ocean.

I would earnestly recommend Chloretone to every physician who has patients contemplating ocean or lake trips.

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TO IRISHMEN.

If the present stream of young men and young women, the strongest and the best, continues to drain across the Atlantic, Ireland may gain recognition as a nation, but she will be only a nation bleeding to death. Ireland wants men more than money. Are there no Irishmen in America willing to come back and bring with them to the old country that experience and resourceful spirit of enterprise which they have acquired in the New World? A Scotchman has started carpet factories which give healthy and profitable employment to two hundred and fifty girls in two of the most poverty-stricken parishes in Donegal. He is making money, as well as a reputation, by the outlay of a small capital and a great business ability. Men of his class are scarce among the Irish at home. If they are to be found among the Irish in America, there is a great opening for them in Ireland to-day.—Stephen Gwynne, *in The Booklovers' Magazine.*

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Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. Patchen, M.D.

ATHLETICS FOR THE CRIMINAL AND THE INSANE.

We have been very much pleased to notice, within the last month, articles in the public press describing the good effects that athletics, in the form of sports and games, have been found to exert upon the inmates of prisons and hospitals for the insane.

As is quite generally known, physical recreation, both as a diversion and as a remedy, has been used in insane asylums for years with the most gratifying results. The following clipping from the New York *Daily News* shows the extent to which the insane patients of the Manhattan State Hospital, on Ward's Island, are allowed to participate in field sports and games:

"All Ward's Island is looking forward to Monday (Labor Day), when the regular field sports will be held on the grounds of the Manhattan State Hospital, East. Patients and employes have trained to the hour, and there will be some lively performances, possibly a breaking of records.

"There is intense rivalry between the occupants of the east and west wings of the hospital, and each of these will send a team to the baseball game, which will be played by patients and which will open the day's programme. After that will come a lively tilt at lawn bowls, and then a swimming race at 11 a.m. In the afternoon there will be, among other contests, a potato race by women patients, sack race, three-legged race, tug of war by women patients and a 75-yard dash for women patients.

"Those familiar with the modern methods of helping those on whom the cruel hand of insanity has been laid know that nothing is more beneficial than lots of amusement and exercise out of doors. Such field days are a regular part of the treatment."

The remedial benefit derived from the active processes of physical recreation may be greatly enhanced by the passive and even more curative processes of re-creation afforded by manual and mechanical massage and "movements."

Every form of mental aberration has a physical basis, is caused by and depends upon some abnormal physical condition, functional or organic, which the processes of mechanico-therapeutics are eminently adapted to correct. A perfect cure often follows their intelligent and judicious administration, and in cases in which this happy result is not obtained they pave the way for, and are valuable remedial adjuncts to, other methods of treatment.

We are informed that there are several private asylums and retreats for the insane in which mechanico-therapy forms a part of the regularly established treatment, and to this fact is attributed the high percentage of cures that obtain in these institutions. We hope soon to be able to announce that state institutions have adopted this relevant and effective adjuvant.

About ten years ago the superintendent of the state asylum at Topeka, Kansas, introduced Dr. Taylor's machines for giving mechanical massage, but he was removed, for political reasons, before he had time to demonstrate their effectiveness by an extended trial.

An innovation in prison discipline that will undoubtedly prove of great benefit has been quite recently inaugurated in the state prison at Charlestown, Mass. This is allowing and encouraging the inmates to play baseball Saturday afternoons. Whether or not the warden expected or desired this relaxation of discipline to do more for his unfortunate charges than to afford them a much-needed and wholesome means of recreation which of itself would be well worth the cost of the experiment, other very desirable results have certainly followed.

The only ojection to this laudable effort of Warden Bridges that we have seen is the mere suggestion by the *New York World* that the prisoners would be deprived of one of the most exciting incidents of the game because under no circumstances would the players be allowed to make a "home run." But even with this drawback the experiment has already proved a grand success.

In reply to a letter to the warden asking for more information concerning the circumstances and regulations under which the game is played than was contained in the newspaper clipping which first brought the subject to our attention, we received the following article, written by one of the inmates. As it contains items of interest concerning other incidents of prison life in addition to those asked for, we reproduce it.

The warden added that "during the summer months, weather permitting, the prisoners go into the yard on Saturday for an hour and a half; in the winter they are out for only an hour. The idea of having a ball game every week is not a new one, but there have, perhaps, been some changes in conducting the sport."

"REAL VALUE OF PRISON SPORTS."

"That good, clean sports in their various branches have a decided hold upon the prisoner's attention, are constantly increasing, and are, so to speak, a necessity for the prisoner's welfare is attested by the eight hundred or more who attend our games of sport. But it would be a sad state of affairs if the recreation of the prisoner were the only benefit derived. The true value exists in mental discipline and physical exercise which the individual receives in training preparatory to and while engaging in the various sporting games.

"That the sports of to-day are far superior, in their aim and purpose, to those in vogue some years ago cannot be disputed. The standard of ideals has gradually broadened until, to-day, the chief object and end of them all is the development of a body with a constitution that will equip the individual for the battles of life.

"It is of the greatest importance that the prisoner of to-day should realize the value of this high standard and indulge, when opportunity permits, in such exercise that will bring the most beneficial and serviceable results. He should also fully understand that there is something of more value to be obtained from it than merely the amusement derived.

"The comprehension of this important fact constitutes an element for his future welfare and success when the field of outside life is reached; for, if faithful to the high ideals on the playground, he is sure to be equipped with the advantage of a good, strong, healthy body with which to compete for existence and success in the great game of life, in which the code of the 'survival of the fittest' is the daily contention.

"It must be admitted that it was a lofty ideal of the present warden, when grounds were furnished whereby the prisoners could find exercise and recreation on Saturday yard time and on holidays.

"Through his personal interest a plot of ground was put into shape and a baseball diamond laid out, with settees around (having a capacity for three hundred) to make the spectators comfortable. Two clubs, the Hustlers and the Resolutes, under capable captains, play a schedule of twenty-five games which extend from April to October. Players are sought with eagerness, which enables any player, of whatsoever caste or color, to become a member of one of these regular nines if he—*a la* Devery—can 'deliver the goods.'

"It is certainly an exhilarating sight to witness one of our games on a Saturday afternoon. The enthusiasm shown is rarely if ever displayed on a league ground, and our 'rooters,' eight hundred strong,' would put those of an outside game to shame.

"The games are earnestly contested and furnish entertainment for the bleachers, 'rooters' and cranks, and on close games the excitement is intense. All the paraphernalia of the games are gratuitously furnished by the administration. National rules prevail and are carried out to the letter by our efficient corps of umpires, and it can be truthfully stated that the games in here are the only ball games the writer ever saw where rowdyism was entirely eliminated. One Saturday yard-time each month is set aside for shop nines, with the result that every man that so desires has the opportunity of getting into the game, and when one shows ability his services are quickly secured by one of the regular nines. Pass ball, quoits, jumping, all excellent developers, are played, and when the baseball season ends the footballs are brought out and kicked by all hands to their hearts' content.

"Our physical culture class has a large enrollment which affords many the opportunity nity of gaining a higher standard of physical development and thereby better health. Likewise, to the men of musical talent our orchestra class provides an opportunity for daily practice, and when proficient they have the privilege of becoming members of our regular orchestra that furnishes music at our Sunday services, a feature of divine worship which does so much to soften prison life. Music, instruments, and instruction are furnished by the administration.

"The good discipline shown by the men must be their tribute of appreciation to the warden for the privileges extended whereby we have the opportunity for intelligent exercises and the improvement of our talents.

"It certainly takes a disciplinarian of the highest ability to secure the beforementioned privileges which tends to separate the man from the prisoner and puts him on his manhood with nothing to fear so long as his conduct is good.

"The excellent state of health of our 815 men is ample proof that the exercise and recreation as conducted by the present administration bring good results. I doubt if there is a community anywhere in which there is so little sickness or in which the death-rate is so low.

"I am sure I voice the sentiment of all who appreciate kindness for favors received when I express the most sincere gratitude for the interest shown by the present administration to promote good, sound, practical ideas, physically and morally, so that when we go from here we may become citizens worthy of respect and able to fulfill our obligations to society and all mankind.

"But I am digressing. The valuable lessons to be learned that exercise is necessary and that for every sport played and mastered there results, as a reward, a greater amount of good health, should not be underestimated. I have referred specially to baseball as it is one of the most valuable games inherited by the present generation. Its benefits are sixfold. The individual learns how to use his mind and body simultaneously, to become instinctively and instantaneously accurate in judgment at critical moments, to have a quick eye, a clear, steady brain and to gain, at the same time, a muscular development that will be promotive of health and also a protection to the delicate internal machinery, while storing up a surplus of vitality for use in the future when necessity arises. We can all build up through Saturday's yard games and room exercise the essential qualities which constitutes the foundation upon which our future success rests, namely, a good, strong, vigorous body in which there is concentrated a surplus of energy, strength and endurance which will enable us to withstand temptation upon release.

"A good constitution is an absolute necessity to every man, and through easy stages of systematic and intelligent exercise one can acquire this valuable requisite—supremely valuable, as it will give the possessor that stability of character, morally and physically, which only a healthful mind and body can supply.

"C. H. C."
"Mass. State Prison, Charlestown, Mass."

There are two valuable and practical lessons to be derived from the quoted effects of exercise upon criminals and the insane which are worthy of brief mention. The first is the evident necessity of exercise for persons of every station and condition of life.

The human body is so constructed that health cannot be maintained for any length of time if the muscles are deprived of a certain amount of activity. Unfortunately for those who are too fond of physical ease, the ill health which muscular inactivity imposes is not visited upon the physical organs and function alone; the mind also suffers. Muscular action is the natural and effective counterpoise to nervous activity of every kind, and mental aberration or some other form of nervous derangement is sure to result if the muscular factor of nervous health is too long inefficient or entirely wanting. *The majority of the inmates of our insane asylums are there because they have failed to preserve, by due muscular action, that balance of expenditure and nutrition between the muscular and nervous systems upon which mental health depends.*

The second lesson to be deduced is, that considered from a therapeutic standpoint, there exists the greatest difference, in its effects, between uncongenial work—the compulsory task in which the mind takes no interest—and voluntary exercise. This holds true even when, in both instances, the same group of muscles are employed.

This fact, with the added benefit of outdoor air, sufficiently explains the salutary effect that games and sports exert upon the two classes of the state's wards under consideration. But this principle is of universal application. Just as surely as "all work and no play makes Jack a dull boy," so surely does all exercise, whether passive or active, prescribed with curative intent, need to be of a kind that, while it affords the necessary employment to the muscles, it will thoroughly interest the mind.

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THE SUNSTROKE SECRET—A PLEA FOR HOUSEKEEPERS.*

By F. L. Oswald, M.D.

There is a story about a Kansas visionary who attributed cyclones to the magic influence of June bugs, till he happened to see a committee of prominent citizens taking wing in midwinter. With a similar conclusiveness, the sanitary phenomena of warm summers might often refute the current theories about the cause of "sunstrokes."

"Probably took off his hat in the blazing sunshine" is the comment of idlers, crowding about the prostrate and moaning man on the sidewalk. "Went bareheaded; rays of the vertical sun glaring on his unprotected skull caused a brain fever."

Housekeepers know better. Experience has convinced them that all the premonitory symptoms of sunstrokes: vertigo, dull headaches, transient fainting fits, may be caused by stove-heat alone, and that a combination of stove fires, with warm weather and heat-engendering viands, may at any time overcome the resisting power of the organism, and effect the total collapse of vital energy ascribed to the influence of sunlight.

The Emperor Hadrian, too, knew better when he travelled bareheaded and afoot through the twenty-six provinces of his world realm. "Sunstrokes" were unknown on the sun-scorched coast plains of Central America, where bareheaded natives travelled, hunted, and played for countless generations, till the Spanish conquerors forced them to change their habits.

The Nubian caravans brave the sun of a cloudless sky in a temperature of—let the slanderers of sunlight guess—130° Fahr., according to Captain Burton, from "120°-145°," according to Baker Pasha. The 110th mark of the Fahrenheit thermometer indicates fever heat; but the fact is that the human organism is capable of preserving its normal temperature under both extremes—aided by warm clothes and calorific food, more than a hundred degrees above that of the surrounding atmosphere in winter; and, even unaided, some twenty degrees below in midsummer.

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* Reprinted from *Home Science Magazine.*

The aids it would appreciate in superheated weather are cooling drinks and artificial air currents; but in stress of circumstances, it will contrive to hold its own, for a while, even against artificial aggravations of sun heat. Superfluous dry goods complicate the problem of resistance, when the mercury approaches the danger point; but the system holds out by adjourning all other work and concentrating its energies on the task of climate fighting.

But a combination of warm weather, kitchen fires, artificial teguments, and blood-heating food at last overcomes that defensive ability. The blood begins to ferment; danger signals, becoming ever more urgent, announce the fact that the remedial resources of the organism are nearly exhausted.

And to that ordeal millions of housekeepers are subjected by the strange custom of selecting the warmest hour of a sweltering summer day for the principal meal, and by a still stranger indifference to the sanitary perils of a high temperature.

A time may come when the historians of civilization will hesitate to credit the fact that centuries of mechanical progress had to elapse before the most enterprising nations of our planet began to cool their dwellings in summer as effectually as they had, for ages, warmed them in winter. House-warming began three thousand years ago in Persia and Northern Greece; house-cooling on anything like an efficient plan only began in 1864, when an engineer of the Government Arsenal of Toulon filled a basement vault with blocks of ice, and cooled some twenty different offices and workshops by means of force ventilators.

The expedient has been adopted in the Washington House of Representatives, in the Vienna Town Hall, in Pike's Opera House, Cincinnati, in some international hotels of the Mediterranean seaport towns. But the vast plurality of our shopkeepers, mechanics, and office drudges have to fight the struggle for existence with the "aid of hat-fans and hope," as Dio Lewis expressed it.

Stagnant indoor heat is more oppressive than outdoor heat. Indoor warmth, intensified by stove fires, often approaches the horrors of the Calcutta Black Hole, or the swelter-den of Dante's Inferno; and to that combination of discomforts civilized men doom their sisters and mothers.

The misery of our large lowland towns thus has come to reach its maximum at the very time of the year when the children of the wilderness celebrate life as a festival. The average mortality of our Atlantic Coast States is one-fifth higher in August than in December. Nature's abounding grace twenty per cent. deadlier than her avarice.

In midsummer the "sunstroke" wards of New England hospitals are crowded with male patients who often have worked only on the shady side of the streets, and with a still larger number of women who cannot plead guilty of outdoor imprudence of any kind.

They have been overcome by the heat, and in nine out of ten cases by the *afternoon heat* of ill-ventilated kitchens and wash-rooms, dining-rooms and nurseries, by vitiated air co-operating with the exhausting effects of a high temperature, at a time when the resisting ability of the system was impaired by the exigencies of digestion.

In other words, "sunstrokes" and all their premonitory symptoms are the effects of hard after-dinner work in warm weather. And that the large percentage of female victims is not larger is due not to the sanitary advantages of women's work, but to the redeeming influence of their temperance habits.

But drugs are beginning to break down that last bulwark. Thousands of women, stricken with fever-delirium, become defenseless in the hands of the nostrum-quack, and for years after have to fight the battle of the midsummer ordeal under a handicap of medicated bitters and quinine.

Theirs is a cruel plight, more pitiful, because more resourceless, than that of the schoolboy whom the dread of the truant farm forces to swallow the microbes of an ill-ventilated class-room, while his soul

> "Still hears the river calling,
> Sees corks a-going down;"

but who also sees ways and means of temporary escape, besides the long recess of the evening hours and the prospect of the approaching vacation.

Overworked housekeepers have no such solace; they toil like machines that have to grind away as long as their rivets will hold together—like plantation slaves, to whom the summer season brought only lengthened hours of weary drudgery.

They have to run the gauntlet of a risk which their brothers contrive to shirk, and often, indeed, evade by actual flight. It is the misery of after-dinner work that makes farm boys seek refuge in the haunts of tramps.

"I could have lived on corn bread and water," said a deserter of that class; "it didn't worry me to chop cordwood in a sleet storm, or milk fourteen cows before breakfast, but after dinner, in warm weather, when I would have given a year of my life for a few hours' rest, and the old man routed me out of my camp under a shade tree to go back plowing in the blazing, hot sun, it was then that I could not help thinking the wild Indians must have been better off."

"And do you think I am bedded on roses?" asked the roasting Inka when his companion in torture shrieked out appalled. Does Johnnie Ploughboy suppose that his sister's soul, in her kitchen prison, is never wrung by wild yearnings for the freedom of the woodlands and brooks?

What is the remedy?

There are two expedients that have stood the test of practice for a long series of centuries: The ancient Roman custom of a single meal, eaten in the cool of the evening, and the Spanish and Spanish-American one of a protracted siesta.

The first plan is "out of sight" the best, as a radical solution of the problem, but out of sight also to all hopes of attainment, athwart intervening mountain heaps of prejudice.

We have to compromise on the second: the siesta expedient. No dogma is more deeply rooted than the belief in the necessity of three daily meals. Gluttons would rise in revolt at the mere mention of a reduction; but with the same emphasis the humanitarians of all creeds and all nations should insist on reserving the three after-dinner hours for a housekeeper's recess—a sanitary siesta, maintaining its privileges against all but the most urgent emergencies.

[According to the almanac, the above article should have been very appropriate and timely in July, but, in view of the actual weather conditions, our readers, to derive any practical benefit from it, will have to transfer it to the scrap book or commit it to memory for future use. It is to be regretted that Dr. Oswald has limited the article to only a consideration of the best means of *preventing* heat stroke. While we are free to admit that "an ounce of prevention is worth a pound of cure," when the cure is needed it is needed badly, and we want the best brand the market affords. The treatment of sun and heat stroke is by no means uniform, while its fatality by all methods is still so great as to render the affliction a matter of very serious concern. From what we know of Dr. Oswald, he must have some definite and radical ideas about the best method of treatment which the public, we are sure, will be glad to know, and which we hope will soon be forthcoming.—Ed. Gazette.]

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HOW AND WHERE WE BREATHE.

Just imagine yourself Oxygen; and I, Nitrogen, woo and win you. With numerous microbes and particles of dust, we enter the vestibule of the nose, which we find lined with many hair-like processes, waving toward the outlet, like fields of grain when a gentle breeze is blowing. These serve as strainers of the air. While there are numerous glands that manufacture a transparent fluid which saturates the air with at least two-thirds moisture, and gives a temperature of twenty to forty degrees. The germs and dust are refused admittance, while we (the air), are taken in, warmed, and then passed back through the nose into the larynx. Here we find a leaf-like process, or trap door, to prevent foreign bodies from entering the trachea, or wind pipe, but always open to pure, fresh air.

We pass on down the wind pipe, which is a muscular and cartilaginous tube about four and a half inches long, consisting of rings passing two-thirds of the way around, the space behind being filled with muscular tissue, which serves to diminish its size. Continuing on down this passage we see it is lined inside with a soft delicate membrane, covered with minute hair-like processes, which wave toward the outlet as if threatening all foreign invaders. It branches like the limbs of a tree into right and left bronchial tubes; these divide and subdivide into smaller branches, which in turn divide into little twigs and spread out into funnel shaped cavities, corresponding to the leaves. These are lined with minute cells one-fortieth to one-fiftieth of an inch in diameter.

These minute chambers are surrounded by hair-like blood-vessels, not over one three-thousandths of an inch in diameter, the space between being smaller than the vessels themselves. There is nothing intervening but the walls of the blood vessels and air cells, which Oxygen has the power to permeate.

Having reached the air cell, you desire to journey on, for you have a mission to perform. I am obdurate. Along comes the iron of the blood; the ignoble creature attracts you by his strong magnetic influence, and you take the first red blood corpuscle and journey on down the blood stream feeling perfectly secure, for you know I am unable to pass through the tissues.

The muscles of respiration contract, and I am forced out into the cold, cold world, while you continue your journey down the pulmonary veins, and are emptied into the left ventricle or auricle of the heart. The heart contracts, the mitral valves open, and you are ushered into the right ventricle. You are not permitted to tarry, for the heart is a busy organ. It again contracts. and you are forced into the largest blood vessel of the body—the aorta. The valves, or doors, close behind you, and you are compelled to journey on at the rate of twenty inches a second. Passing up to just below the top of the breast bone, where you see large branches given off to the head, neck and arms. You follow the vessel on downward alongside of the spine, where it gives off branches to the contents of the chest.

Then you penetrate a large dome-shaped muscle that separates the chest and abdomen and sends branches to the stomach, liver, spleen and kidneys. At the lower part of the abdomen the channel along which you have been flowing divides into two large branches, which supply the cavity of the pelvis, and extremities clear to the toes, giving off branches which divide and subdivide until they form capillaries which are deeply imbedded in the tissues.

Here you desert iron, unite with carbon or the waste of the tissues, combustion takes place, heat is generated and the person breathes in every tissue of the body, the lungs acting as a reservoir and depot of exchange.

You have performed your function by uniting with worthless waste material, and are now called carbon-dioxid. You are poison and dangerous to health, so are not permitted to tarry, but must hurry along resting only between heart beats. You pass from the capillaries into the purple blood stream of the veins, at the rate of eight inches per second; you are finally emptied into the right auricle of the heart, tired and sick of your companion. You pass into the right ventricle, but the heart does not want you, and forces you out into the pulmonary artery, from whence you are expelled, taken up by the lungs, your presence being telegraphed up to the respiratory station or center in the brain. It telegraphs down for the diaphragm and respiratory muscles to contract, the lungs to expand, take in fresh air, and expel you out into the beautiful world, where you are immediately arrested by the flowers, plants and trees. The carbon is imprisoned and used to build up the framework of the plants. You are liberated and again unite with nitrogen to form air, which is so essential to all life.—D. ESTELL, *in Vim.*

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ARE MEN STRONGER OR WEAKER?

THE *New York Times* is responsible for this:

The average chance of living is always a fascinating subject for discussion, scientific or other. It was taken up at the convention of the actuaries on Monday with results that are on the whole both interesting and cheerful.

Mr. Charlton T. Lewis, who adds to great technical skill a broad philosophical turn of mind, called attention to the fact that the average term of life had been increased rather by prolonging the life of the weak than by adding to the vitality of the strong, and he intimated that it was open to doubt whether the saving of the weak compensated for diminution in the vitality of the strong. We do not know that science has yet established the conclusion that the vitality of the strong is really diminished. If it be not, if the strong are as strong as ever, and those who formerly were weak are stronger, then it is hardly an open question whether the race has advanced. Almost any one, under these conditions, would think that it had.

The change, whatever it is, that has taken place, Mr. Lewis attributes to improvements in the prevention and in the treatment of disease, to better sanitation, and better medical treatment. Undoubtedly one of the most marked effects of these is the lessening of the death rate of infants, and it is probable that among the infants saved there is a larger proportion who grow up relatively feeble than there was among the smaller number who were tough enough to survive the worse conditions of former times.

But it is obvious that with the weak who are saved from perishing there must be a considerable number of fairly strong who are saved from invalidism, who would have been sickly in the past and now are healthy. In these cases there is a substantial increase in vitality. The exact effect on longevity and on vigor of the changes in modern existence is, of course, a tangled inquiry. It is easy enough to give offhand solutions of it that may well be too optimistic. But it is also easy to suggest solutions that are too pessimistic. Not that Mr. Lewis does this, but others, who have followed his line of argument, have tended to do so.

* *

TO AVOID WRINKLES.

DON'T indulge in the bric-à-brac habit; it is responsible for more wrinkles and crow's feet than age or illness. Learn of the almond-eyed Japanese the secret of retaining a smooth, unfurrowed face. The secret is that she displays nothing in the drawing-room except a lovely flower and a screen.

Don't get tired if you care to preserve the pristine beauty of a rose-leaf complexion.

Don't shop the whole day long in feverish excitement, running bargains to earth. Not only are dress and temper ruined, but complexions as well.

Don't wear gloves too new or too old. New ones cause wrinkles because of their newness; old ones because of their want of respectability. Gloves are worn too much anyway.

Don't attempt to acquire all the accomplishments, attend all the receptions, theatres and lectures, and sell tickets for all the benefits—unless you want to be old and wrinkled before your time.

Don't always be doing something; have intermittent attacks of idling.

Don't neglect the afternoon "forty winks." If you don't rest your mirror will show a new line in your face every day.

Don't sleep with the hand under the cheek; it will numb and wrinkle the skin.

Don't let the jaw drop just at the moment of falling asleep; it tends to make lines on either side of the mouth.

Don't use powder on the face. It works its way into every line and digs it deeper and deeper.

Don't be afraid of friction for the face; freshness is prolonged by the tepid bath in which bran has been stirred, followed by long friction. This keeps the blood at the surface.

Don't indulge in the essentially feminine habit of "knitting the brow;" take life less strenuously.

Don't always be thinking of something. Sometimes think of nothing.

Don't let a day pass without relaxing limbs, muscles and expression.

Don't fret and don't worry—these are the best cosmetics. Worry is called our national disease, and "Americanitis" is its distinctive name.

Don't "putter;" either work, rest or play. "Puttering" is twin sister to worrying

Don't put too much of yourself into the ordering of the household or the management of servants if you wish to keep fagged cheeks and hollow eyes at a distance.

Don't get wildly excited if Bridget has neglected to dust the legs of the hall table. Neither the welfare of your family nor that of the nation is involved.

Don't exhaust all your reserve force over petty cares. Each time that a woman loses control over her nerves she moves a fraction of an inch farther on in the path that leads to premature old age.

Don't forget that an ounce of prevention is worth several pounds of cure. It is better to begin to take care of complexions before they begin to show wear and tear.

Don't think it supernaturally virtuous to disregard beauty. The divine gift of beauty is the second great blessing of life—health being the first.

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FATHER KNEIPP'S CURE.

Maud Howe thus describes this unique treatment, in *Lippincott's Magazine:*

In the early morning all the patients walk barefoot through the wet grass. Those who have been here longest go without shoes and stockings all day. I am told it is delightful to walk barefoot in the new fallen snow. Women's skirts reach only to the ankles; men wear knickerbockers. The only footgear allowed at Woerishofen is the leather sandal, classic and comfortable. New-comers begin by wearing the sandal over the stocking, then the stocking is left off for half an hour—an hour—and finally for the whole day. An hour and a half after breakfast and dinner a cold douche is taken. The blitzguss (lightning douche) is for people who have been taking the cure for some time. The rumpf (body) douche is commonly prescribed for new arrivals. At the women's bath attached to this hotel a rosy mädchen plays the hose upon the patient with skill and firmness. That ordeal over, the dripping victim scrambles hastily into her clothes—drying and rubbing are forbidden—and exercises vigorously until she is perfectly dry and warm. The exhilaration which follows is indescribable. In the exercise room attached to the largest bath I have seen a bishop capering, a princess sawing wood, a fat American millionaire pirouetting with a balancing pole. No one laughs; it is too grave a matter. You dance or prance, box, saw wood or do calisthenics for your life—anything to get up a circulation!

Trained Nurse

THE NURSE AND MASSAGE.

MASSAGE is making such progress in popularity that it behooves every progressive nurse who recognizes the band wagon as it passes, and who hopes to keep in the swim—pardon us for these flippancies of expression—to acquire a good working knowledge of the methods and practical technique of the masseur. The potency of massage for good in every chronic ailment, from laziness to locomotor ataxia, is almost unlimited, and the invalid public—to indulge another expression that will probably soon claim authoritative if not classical recognition—has not been slow to catch on.

Ed. Harrigan's "Rubber from Yonkers" has become a society pet, and the nurse who cannot manipulate flesh and soothe nerves mechanically as well as by mixing and administering tinctures, tablets and triturations, is often out of a job, when others who have mastered the "knack" of massage are unable to keep up with the demand.

It is true that, like poets, the best masseurs are born and not made, and it is no doubt true that some very faithful nurses, as nursing formerly went, can never become really good masseurs. They lack either muscle or that mysterious touch that for want of a better name is usually called magnetism. But it is equally true that no one who has the physical ability to be a good nurse, according to the old standards, need despair of becoming a fair operator.

The first requisite is an outline knowledge of anatomy and physiology. This they are presumed to have mastered before attempting the vocation or profession of nursing; but the masseur or masseuse should devote a little fresh study to special points in connection with both these fundamental subjects. They should acquire a good practical knowledge of the laws governing vital action, including a familiarity with the organs, structures and tissues involved, and with the processes of digestion, assimilation and elimination. These are the essentials, and it is hardly necessary to go beyond them or bother their heads with the more metaphysical aspects of vital transformations grouped by the astute professors of histology, physiology and etiology, under the names of morphology, metabolism, catabolism and trophism.

There are in the market numerous volumes on massage from which the general principles of the work can be gleaned, and the rest must, as in all other professions, be learned from clinical practice.

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THE PROFESSIONAL NURSE.

UNDER this head a correspondent of the *Medical Record* has this to say:

"The so-called 'Professional Nurses' have been making strong endeavors, in different States, with some success, for direct professional registration in the laws of the land and State registration on the same or similar lines to those accorded to the medical profession. That this is a justifiable move is beyond question. It should guarantee to the public a means of distinguishing between the trustworthy and competent person and the contrary by signifying the graduated from the non-graduated nurse. The guarantee, however, is by no means infallible. Some 'training schools for nurses' are still too much 'trade schools,' even as there are still too many such among our medical schools. The question at issue is, how much fundamental knowledge should a professional trained nurse have? By fundamental is meant scientifie knowledge, fundamental acquaintance with the 'theories' of the work and the 'reason why' of his or her acts. That a man or woman can be trained or drilled to be reliable in work, and yet know little or nothing of the science of it, even as a soldier can be drilled in his duties and still know nothing of the science of war is not only self-evident, but practically even more than the present training schools have generally attained to. A writer on this subject has recently claimed that the trained nurse should be competent to make every clinical test of urine, blood, or diseased product. That can be done even as an engineer can be taught to run a locomotive and yet know nothing of the science of mechanics. Another question is, who should decide on the standard of education of the professional nurses—the nurse organizations, the faculties or managers of the training schools, or the medical profession? It would seem that that question should be entirely in the hands of the medical profession. If the physicians and surgeons do not know what is required of the nurse, who does? As to the 'faculties' of training schools, their opinions are not worth much where those schools are sort of independent institutions, having hospital connections, but not a part of great public hospitals. The training schools are more or less like the medical. Too many of them are of a semi-private nature, for the 'good' of those directly interested, the public and the student-nurses being consistently and persistently exploited for that 'good' and little else.

"The Organization of Professional Nurses, like many a medical society, have also the same weakness. They are liable to get under the control of ambitious persons who desire to shine before the public. What is worse, these 'leaders' are saturated with a 'will-o'-the-wisp' idealism which is pure moonshine, shadowed by intellectual cloudiness.

"To return to that fundamental question—does the professional nurse require a more or less profound education in the scientific bases of medicine in connection with an exact training in practical routine? If so, how much, and where is the nurse to get that scientific instruction? Certainly not in any of the existing training schools as now organized. The 'probation course' of two, three, or six months, or even a year, generally demanded is of little or no use except to obtain a very general idea of the student's fitness, physical more than mental. It is largely comparable to the 'one year's reading with some practitioner,' now traditional, that formerly prevailed in our medical education. If the medical profession and public service require scientifically educated nurses, then that education must and should be given in institutions entirely free from any hospital connections, and should be free. In other words, the respective States should establish a State normal or preparatory school for nurses where these fundamentals and all laboratory drilling should be taught. The term should be of two years' duration, with three months' vacation between the first and second year. Graduated students should then be apportioned out to the respective public hospitals and institutions for another term of two years. Finally, on receiving a certificate of competency from the hospital, the student-nurses should be examined by a State board, registered, and given their diploma of competency. While private, or semi-public (endowed) hospitals might have the privilege of employing uncertified attendants they should be strictly forbidden issuing any certificates indicating any kind of proficiency to any such employes, and if requiring 'professional' nurses should be obliged to apply to the State Board of Registration for them. Complaints as to unfitness or improper conduct of registered nurses should be made to the State Board of Registration, which should have the power to place the nurse on 'probation,' or to withdraw a certificate altogether in warranted cases.

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REGISTRATION OF NURSES.

On this mooted subject which is being agitated in some of the states, the *Medical Record* thus comments:

Registration of nurses is being strongly advocated in Great Britain, but with true British conservatism the matter is not to be pushed with any undue haste. The question will be considered in all its bearings, before any definite decision is arrived at. However, there is no doubt that the sentiment of the medical profession, of the nurses themselves, and of that portion of the general public which interests itself in the subject, is in favor of the registration of nurses. The supplement to the *Hospital*, June 27, has an article treating of the training and registration of nurses, the greater part of which is devoted to a somewhat sharp criticism of the futility of legislation in connection with registering nurses, that has up to the present obtained in the United States. The article reads as follows: "It is the fashion of those who write and speak most about the registration of nurses to point with scorn to the present state of affairs in England, and to laud the introduction of legislation for the registration of nurses in the United States. Now our American cousins lay down in their registration bills 'That nothing shall in any manner whatever curtail or abridge the right and privilege of any person to pursue the vocation of a nurse, whether trained or untrained.' (Carolina.) This clause clearly reveals the spirit in which such legislation is enacted in the United States. An agitation is gotten up to secure an act on a particular matter, which is duly passed but never enforced, for the simple reason that no machinery for its enforcement is set up or probably desired. There is no utility in an act of legislature unless that act is so drawn as to define clearly the purposes aimed at, and to secure the provision of funds, and an adequate and properly constituted authority to ensure its enforcement. When passed, none of the American registration bills fulfil these essential conditions, and for all practical purposes they might just as well have no existence." These strictures are to some extent justified by the facts of the case. In but few States has an attempt ever been made to guarantee the efficiency of nurses, by compelling them to offer evidence that they have had a sufficient period of training, and to undergo a test examination. In those States in which efforts have been made to adopt such a course and to introduce bills providing for the registration of nurses, unexpected opposition has been developed against their passage. The Illinois bill was vetoed by the governor. The good effects of the Carolina bill were nullified by the clause referred to in the *Hospital* supplement, and in no State but New York has a bill been passed likely in any way to improve the status of the nurse. The New York bill, although by no means an ideal one, is an advance movement, for it provides a system of registry for regularly trained nurses who shall have passed a satisfactory examination before a board of examiners appointed by the regents of the University of New York. Nurses passed by the board will each receive a license as registered nurse and may attach R.N. to their names, as may also nurses already qualified by long service. The writer in the *Hospital* supplement also falls foul of the length of time considered sufficient for the training of a nurse in the American acts, *i.e.*, two years. He does not think two years enough, but wants an ideal of at least three years' training and with a minimum age of twenty-five years for the holder of a license. It is an obvious truth that nurses should be thoroughly qualified for the work that falls to their lot. The only way to reach such an end, is that they should give evidence that they have been well trained, and should pass an examination before they are permitted to act as nurses. It would be manifestly to the benefit of all concerned if every State were to pass bills for the registration of nurses embodying these principles. The status of nurse at the present time is ill-defined, and the whole question of nursing is in an unsatisfactory condition.

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THE EVOLUTION OF THE TRAINED NURSE.*

By Hon. Walter T. Merrick,

Philadelphia, Pa.

(*Concluded from the September* Gazette.)

To show you the gigantic strides your profession has made I will call your attention to the condition of affairs at the breaking out of our great Civil War in 1861. At that time the world did not contain a single graduated trained nurse with a diploma from a recognized training-school for nurses. The instinct within women to nurse the afflicted was as strong then as to-day, but it lacked the systematic training to enable it to know what was best to do and how and when to do it. Scarcely had President Lincoln's call for 75,000 troops been filled before a society of New York women organized to procure nurses for our brave soldiers. June 10, 1861, Edwin M. Stanton, then Secretary of War, appointed Miss Dorothea Dix, of Boston, as the Government Superintendent of Female Nurses, with full power to make such selections as she chose. This was the first appointment of the kind in the history of our country. She had not then, as we have now, an army of thousands of noble women, educated and trained for the work, to choose from. On the contrary, our army nurses had no training, but came from the homes of the nation. Patriotic women who had never witnessed suffering outside their little circle of friends offered their services to their country. As the war went on with its fearful mortality, it found the government with totally inadequate provisions for nursing its soldiers. Truly it might be said of them

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* Address to the trained nurses of the Medico-Chirurgical Hospital of Philadelphia. Reprinted from *Med. Bulletin.*

> "There was lack of woman's nursing;
> "There was dearth of woman's tears."

Yet these women, few in number, but strong in purpose, did the best they could. It was a terrible condition. The greatest war the world had ever seen was being waged between civilized powers. Hundreds—yea, thousands—of lives were lost through insufficient and inefficient nursing.

But the ideas that then prevailed as to the qualities of a successful nurse were vastly different from to-day, if I may judge by the faces before me. Miss Dix, good and noble as she was, a woman who gave her life to charity and who did more than any other woman before or since to bring about reforms in prison discipline and the treatment of criminals, both in America and in Europe, yet had some very peculiar ideas about the necessary qualifications of an army nurse. With all your experience, education, and training, not one of this class could have entered a military hospital during the rebellion as a nurse. There your diploma would have availed you nothing. One condition precedent imposed by Miss Dix was this: "No woman under thirty years need apply to serve in government hospitals." How many, many years you would have to wait before you could acknowledge that age! Another provision was: "All nurses are required to be *very* plain-looking women." Even if some of you should reach the age of thirty you would still be barred on what might be called the second obstruction placed in the way of securing nurses for the soldiers. But perhaps you will consider the third provision even more heinous than the other two. It was this: "Their dresses must be brown or black, with no bows, no curls or jewelry, and—no hoop-skirts!" It is amazing that under such conditions she ever procured a single nurse. The patriotism of the women who voluntarily came under that description can never be questioned. Even this terrible war, with its deplorable lack of proper nursing, did not arouse an interest in the subject to found a school, and it was not until eight years after the war closed that this was accomplished.

But, while it was slow in starting, its progress since then has been by leaps and bounds. Thirty years ago not a graduate nurse trained in America, and only one training-school established; to-day there are hundreds of such schools throughout the land and thousands of nurses graduated in our own institutions. You have your local as well as state and national societies and membership in the International Congress of Trained Nurses. To-day no civilized land is without its quota, and trained nurses have extended their usefulness to almost every quarter of the globe. Alaska, India, Africa, China, Japan, Cuba, Persia, and South America are blessed by their presence.

When the Spanish War broke out we had a small army of nurses ready to volunteer for services. I never can forget the grand work performed by the nurses of the Medico-Chirurgical Hospital for our patriotic soldiers. At that time typhoid fever was sending far more of "our boys" to early graves than the bullets of the Spaniard. Unaccustomed to the climate and to hardships, the soldiers easily succumbed to its attacks. I well remember how, in that moment when brave lives were passing away with appalling rapidity, a consultation of the faculty of the Medico-Chirurgical Hospital was called. Headed by Dr. Shoemaker, they immediately took steps to give our soldiers the needful care and nursing. The very next day special trains departed from Philadelphia bearing a medical staff and nurses to bring back the protectors of our nation and restore them to life and health. Nurses and doctors hurriedly provided cots and supplies, and before the sun rested on their labors all was ready. I remember how anxiously all awaited the arrival of the trains with their precious burdens. All the great merchants of the city placed their delivery wagons at the service of the hospital to be used as ambulances, and in an incredibly brief space of time hundreds of those suffering men were being tenderly cared for by the nurses of the Medico-Chi. It is a part of the history of this noble charity that it was the first to open its doors and bring long train-loads of our soldiers here. Others soon followed where the Medico-Chi. led, and by that means many lives were saved. Night and day for weeks those faithful nurses who preceded you here hovered over the cots of those men. Tenderly and faithfully they labored. Verily their reward should be great.

Only day before yesterday Philadelphia was honored by the presence of one engaged in your calling who has made her name honored and loved on two continents and the islands of the sea—a woman who had not your advantages to begin with, yet who is tendered the homage of the best people of the land wherever she goes. Clara Barton's name is known and honored all over the world. It was she who established the Order of the Red Cross in America. To-day forty nations respect its sacred emblem. Examples of women who have made their names and the profession of nursing honored cover the pages of modern history. These great works which have been flowing on during the recent years of the past will continue to flow with increasing force and volume through the ages to come. Upon your shoulders will soon fall the duty of not merely maintaining, but of increasing, the standard of usefulness already established. It is a noble purpose to cheer you on to greater deeds.

Your pathway will not be strewn with roses. The struggle you have had should only nerve you for the many trying ordeals to follow. Yet it is only by passing through fire that gold is refined. You will labor in the mansions of the rich and in the humble dwellings of the poor. In each your mission is the same—the relief of human misery. Let your ministrations, your kind patience, sweet temper, and amiable manners be the same whether you minister to the humblest or the highest in the land. While it is true many trials and hardships await you, it is equally true that your compensation will be still greater. Who can measure the blessings that follow those whose duty and privilege it is to banish suffering from the presence of the "wee one" still in its cradle; from the bedside of the youth and the strong man in his prime and his anguish; but most holy of all to soothe the rest and minister to the wants of old age? Honor and reverence await you who perform your duties to those who for the time helpless are placed in your care.

"To know how to command you must first learn to obey." Duty faithfully performed in small things leads you on to greater usefulness, greater power for good. In conclusion, let me suggest to you in the words of the poet that

"Heaven is not reached by a single bound;
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we climb to its summit round by round."

Book Reviews.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by Solomon Solis Cohen, A.M., M.D. Vol. X. Pneumotherapy and Inhalation Methods. 116 Illustrations. By Dr. Paul Tissier, Chief of Clinic of the Faculty of Medicine of Paris. Philadelphia, P. Blakiston's Son & Company, 1903.

The highly appreciative opinion which we have not been hesitant or ambiguous in expressing in these columns of the several preceding volumes of this admirable and important series as they have reached us is in no degree diminished by an examination of Volume X., now before us.

Ultra patriotic readers may feel a tinge of instinctive regret that Dr. Cohen seems to have found it necessary, or at least saw fit to select a foreigner to edit this volume, which in importance is second to none of its predecessors of the series. We ought, however, to remember that science recognizes no territorial boundaries, and surely no one who appreciates lucidity and directness of thought and gracefulness of diction will have occasion to close the book with any feeling of regret because of its foreign authorship.

At the outset we have occasion to thank the author for a reasonably adequate definition of the word Aerotherapeutics, which none of the ponderous medical dictionaries available has ventured to give. For example, Foster quotes the word only to send you on a hunt for Pneumatic Treatment, which he does not define but sends you to Pneumotherapy and Pneumotherapeutics, which he defines as the treatment of pulmonary disease! There is a further reference to Pneumatotherapy, which is curtly styled the treatment of disease by the use of compressed or rarefied air. It is a brilliant instance of how not to do it.

A brief and interesting history of the origin and growth of the idea of aerotherapy follows, and then the subject proper is treated *in extenso,* with more system and accuracy than has ever before been attempted. Taking Foster's definition as a guide half a dozen pages ought to exhaust the subject, yet here is a work of nearly 500 pages in which it is difficult to discover any glaring effort at padding. If we were to criticise any feature of the work it would be that of giving more than necessary prominence to experiments and experiences of the earliest investigators which were so crude and unsatisfactory that they taught little. At the same time there is a marked omission of more recent experiments, notably those of Demarquay of Paris and our own Thompson.

Barring these omissions the work is very full and satisfactory. How the five hundred exquisitely printed pages have been so well filled on a topic concerning which the literature is so very meager will be sufficiently apparent to those who carefully follow Prof. Tissier's apt and authoritative handling of the subject. It is even more surprising when we remember that a considerable and very important section of his subject had already been treated in another volume of this series, under the head of Climatotherapy.

Two more volumes complete the series, which, we repeat, is the most important publication of the new century.

A TREATISE ON MASSAGE. By Douglass Graham, M.D., Boston, Mass. Third edition, enlarged and illustrated. Philadelphia, J. B. Lippincott Co., 1902.

The first thought, on taking up this book, was if the inside is as creditable to the author as the outside is to the publishers, it will prove a valuable contribution to the very important subject of which it treats. After a very careful perusal of its contents we are satisfied that the subject matter supplied by the author fully justifies the painstaking efforts of the publishers.

The volume is of goodly size. It consists of twenty-seven chapters embellished (mark the word) by sixty-three illustrations which, in many instances, add greatly to a clear understanding of the methods and processes described in the text.

The book is written, wisely we think, from the standpoint of the physician, and, consequently, quite in contrast with some of its predecessors, is not merely a handbook of technique for the masseur, but a philosophical exposition of the principles of massage and of its effects upon all of the tissues and functions of the body both in health and disease. Theory and practice go hand in hand as they should. Thus, in the various conditions for which massage is recommended, its remedial value is not left to be inferred from its theoretical relevancy alone, as indicated by its physiological effect upon the tissues involved when they are in a state of health, nor even from the effect following its application in a single illustrative case. A sufficient number of similar cases are adduced (sometimes running up into the hundreds) to make it certain that the ascribed results are not due to chance but to the remedial methods employed.

Although addressed to the educated physician and thoroughly scientific in tone and expression, it is not above the easy comprehension of the educated masseur or masseuse. We feel that in spite of faults, both of omission and commission, to be noticed further on, it is no exaggeration of the truth to say that it is excelled by no treatise on the science and art of massage that has been written by any author in this country.

In none of the twenty-seven chapters in which over one hundred distinct conditions are mentioned as being favorably affected by massage, is the subject matter treated in a common-place or desultory manner. The author's long and large practical experience makes him an authority upon the topics of which he treats. His opinions are clearly and fearlessly expressed, and, if they are not always in harmony with those of contemporaneous authors, what seems to him a justifiable reason for disagreement is always given.

The description of methods and processes is precise and unmistakably plain, and, between the lines, there is often revealed a fertility of resource in adopting means to ends that cannot but prove an inspiration to the student-reader.

To the student, the most interesting chapters are those on the "Definition and History of Massage," the "Mode of Applying Massage," the "Physiological Effects of Massage," "Massage in Sprains, Bruises and Dislocations," and "Massage of the Head, Face, Eyes and Throat." The merits of this last chapter consist partly in the author's original methods of applying massage to these regions, which are undoubtedly a great improvement over those usually recommended in text-books, but, still more, to the direct and unequivocal remedial influence, massage, correctly given, is shown to exert over many serious and otherwise incorrigible diseases which affect the organs and tissues of these parts.

The physician without experience as to the varied and comprehensive effects of massage, will find the chapters on the "Physiological Effects of Massage," "The Relative Value of Massage in Neurasthenia," "The Effects of Massage upon Internal Organs," "Massage in Affections of the Nervous System," "Massage in Raymond's Disease," and "Massage in Joint Affections" very interesting and instructive reading.

Physicians with considerable knowledge of the remedial scope and efficacy of massage, even if this knowledge has been gained by observation and experience as well as by reading, will undoubtedly discover many new and valuable ideas in this up-to-date presentation of the subject—enough we are sure to make its purchase and perusal worth all the time and money it will cost.

Finding so much in the book to commend makes criticism and disapproval of certain ideas and methods, sanctioned if not directly advocated, by the author, an unpleasant feature of what otherwise would be wholly a labor of love. Our first criticism applies to something that is conspicuous by its absence—to something which, in the writer's opinion, is a very serious omission. Specifically speaking we mean mechanical massage—massage at rates of motion both much above and much below those possible by the hand.

Why this important remedial recourse

which has done so much to enlarge the scope, lessen the labor and increase the usefulness of massage as exhibited in the manual form, should not, in a book of this kind, be accorded the tribute of even a passing notice, creates intense surprise, if nothing more. Even if the author has had no experience of his own to assist him to form an opinion concerning the merits of this by no means new remedial adjunct, he might at least accept and record the experience of others as he has done in some instances in which massage was employed in an unusual manner and also in others in which for its use there was neither precedent nor authority.

Our second criticism has reference to the implied, if not actually stated, recommendation or rule that massage should always be given upon the bare skin.

We are satisfied this method of giving massage is wrong and without physiological warrant. It certainly must have been inaugurated, by some ambitious disciple of massage before little, if anything, in regard to the true functions of the skin and nervous system was known, and has followed the fate of a great many other unwarrantable practices which, conceived and established in the darkness of ignorance, are thoughtlessly continued long after the light of knowledge has revealed the falseness and worthlessness of the claims upon which they were founded.

The purpose of massage is either to incite or inhibit one or more of the nutritive processes whose defective or excessive action accompanies and supports every possible manifestation of disease. It is not the function of the skin to participate in any of these nutritive changes, and there are no manipulations of the skin alone, whatever may be their nature or however deftly and scientifically they may be administered, which will either enable or compel it to assume and discharge duties it is not adapted to perform. The remedial regulation and control of nutritive processes which is so desirable and which it is the province of massage, rightly administered, to bring about, is secured by the mechanical influence it exerts upon the muscles, blood, lymph and secreting glands situated *beneath* the skin.

The processes which affect these deeper parts in the most satisfactory and reliable manner, are applied *upon* and *through* the skin but not *to* it. When massage is properly given, "the skin," as Dr. Taylor has truly said, "is firmly held, moves with, and, in effect, becomes a part of, the instrument of application; it receives nothing and is caused to give nothing." "Whether the hand comes into intimate contact with the skin or whether there be several layers of clothing intervening, causes no perceptible or theoretical difference in the effect upon the underlying tissues."

If, then, the necessity for giving massage upon the bare skin does not exist, why should this manner of giving it be preferred? It is, to say the least, immodest, and patients of either sex would not voluntarily submit to it did they not believe it absolutely necessary to do so in order to receive the best results. Again it is not so pleasant, that is, it causes more local irritation and disagreeable sensations, than when applied over loose clothing, and, other things being equal, agreeableness is a feature of massage work which no masseur or masseuse can afford to disregard. It, moreover, exposes sensitive and delicate patients to the unwholesome influence of cold and drafts of air, and, unless the operator can always choose his subjects, there are many occasions when both on the score of cleanliness and danger of contagion, the contact of one or even of several folds of a loose garment is preferable to that of the bare skin of his patient.

But this is not all. There is a special, physiological reason for not applying massage to the bare skin. This is its liability to increase the irritability of the brain and spinal cord.

The most important function of the skin, aside from that of acting as a protection or covering for the delicate parts and organs beneath it, is that of conveying sensory impressions to the brain and spinal cord through nerves whose terminal loops, at their distal end, are found at every microscopical point of its periphery. Each one of the numerous impressions that reach these large nerve centers through these nervous channels, incites in them a responsive activity that corresponds to the nature and intensity of the impression conveyed.

The degree of this responsive excitability varies greatly in different individuals in health, but it is always increased by long continued illness, and especially so in all diseases of a nervous character. All nervous activity, unaccompanied by compensatory muscular action, not only exhausts nervous energy very rapidly but increases the irritability of the nerve centers involved. The chief and unavoidable effect of all tactile impressions made upon the bare skin by rubbing, stroking, etc., is that of exciting the functional activity of the sensory nerves and nerve centers without any compensatory nutritive action on the part of the muscles.

The practical result of all such procedures is a great and unnecessary waste of nervous energy, and the establishment of an increased degree of irritability of the sensory functions of the brain and spinal cord—two conditions to be avoided rather than invited and encouraged.

As an illustration of the extreme effects that may be produced upon the brain and spinal cord by the reflex action induced by slight mechanical irritation of the nerves of the skin, it is only necessary to refer to what is known by every one to happen when some particularly sensitive spot, as the sole of the foot, is tickled with a straw.

These same, undesirable, not to say injurious effects, although, of course, greatly modified in degree, occur every time massage is given upon the bare skin of any invalid whose nervous system is either naturally very sensitive or has become so from protracted illness.

These harmful effects of massage may be eliminated and those that are wholesome and remedial retained simply by the interposition of several layers of loose clothing between the skin of the patient and the hand of the operator. This precaution renders it possible to make even and uniform pressure upon such a large area of the nerve-endings in the skin that no distinct, isolated impression of an exciting or irritating nature is carried to the brain.

The third and last criticism relates to the employment of *intra-pelvic massage* which the author recommends and employs for certain affections of the uterus and ovaries. *This method of treating pelvic diseases of women is not only indecent, disgusting and demoralizing, but entirely unwarrantable and unnecessary. Moreover, it is irrelevant and unscientific.* Had the author studied these diseases with the same zeal, diligence and acuteness of observation that characterizes his investigations of other disorders, even more complicated and obscure, he would have discovered, or, at least learned from others, the true cause of pelvic affections and the resources, provided by nature, within the system itself, for their prevention and cure.

He then would have rejected the false and misleading etiology entertained and taught by surgical and gynecological experts, as well as their methods of practice. He woud have learned: 1st, That congestion, inflamation and displacements of the pelvic organs are *effects* whose *causes* do not reside in the organs themselves but in their environment; 2d, That when the above-mentioned conditions *do* exist their removal, if at all possible, can be radically and permanently effected in a perfectly agreeable and scientific manner, void of even the semblance of offense, by "movements" and manipulations applied to the exterior portions of the body, and 3d, That even adhesions, the result of inflammatory, diseased action, can be more surely and promptly overcome by an intelligent use of these same means, than by the questionable process he advocates.

In closing, the reviewer earnestly hopes that a fourth edition of this really valuable and praiseworthy volume will soon be called for and that when it appears the objectionable features he has felt it his duty to criticise will have been corrected.

P.

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Notes and Queries.

Query 160. I have been brought up to look upon smoking as a vice, and have persistently abstained. Having finished my college course I am now in a theological school where I find that I am decidedly an "odd" one as to this habit. All my classmates, and for that matter all the professors and teachers indulge, and they all urge me to put aside my ascetic prejudices, as they call them, and join them in the "moderate use," which is the usual description applied by habitual smokers to their "innocent" dalliance with My Lady Nicotine. They tell me I lack sociability, camaraderie and good fellowship, and that it will really interfere with my progress in my studies. Under the circumstances do you think I am justified in learning to smoke?

Answer.—But for our somewhat extensive experience of the world, including a considerable observation of the clerical world we confess that we should have been shocked and discouraged on receipt of the above query. That ministers of the gospel, who write Rev. before their names and set themselves up as exponents of the principles and life of the pure and self-denying Christ, should incur the smoking habit is not so strange, as the world goes; but that they should deliberately advise young men who have been fortunate enough to steer clear of that pernicious habit to smoke, is incomprehensible. As a rule smokers admit the harm and slavishness and uselessness of the habit, which has so enthralled them that they do not feel equal to the task of breaking off, but at the same time they are honest enough to discourage their young friends from beginning. Some of them plausibly insist that while tobacco hurts a great many of those who indulge it does not hurt them, individually, because they use only the best brands, or they are careful not to really inhale the smoke, or they do not use the weed to excess (according to their own amber-tinted judgment!)

As to the physical effects of the weed a little reflection will teach you that it is by no means the harmless pastime its advocates would be glad to believe it. The deathly sickness of the novice after his first strong cigar or innocent quid is a sufficient proof of its toxic properties. And you hardly need to be reminded of the toxicological fact that a single drop of the oil of tobacco placed well back on the tongue of a cat will prove instantly fatal. That nature adapts herself to its use as nearly as possible and that the human system withstands its baneful influence in many cases for many years is no proof that it does not materially shorten the life of every habitual user. There are no available statistics at hand to show the facts in the case, but "died of a smoker's heart" would account for more premature deaths than pneumonia, typhoid fever and consumption combined. A few glaring instances might be mentioned—but at the risk of calling down a babel of protest.

General Grant died twenty years too early, and there are very few who know his private history who can be made to believe otherwise than that his inveterate habit located and hastened the evolution of the cancer that ended his career. John Fiske, it is said, succumbed to a smoker's heart, dying suddenly and all in a heap before he had turned the prime of his great noble life. He should have lived to be a hundred. Colonel Ingersoll dropped dead while phoning his family physician for something stronger than nitroglycerin to bolster up his paralyzed heart, and it was the paralysis of nicotin. The lamented President McKinley would have rallied from the assassin's bullet and the surgeon's scalpel had it not been for the thorough undermining of his vital powers by the constant use of tobacco. The bullet was safely removed, the wound was made perfectly aseptic and all things were in his favor—except the lack of normally healthy tissues and healthy blood. His nervous system was too thoroughly undermined to resist the shock and supply the needed reserve force to carry on and complete the healing process. The attending surgeons were confident that their illustrious patient was practically out of danger at the very moment when necrosis of the gastric tissue had set in. They had ignored the one telling factor that really decided the case. Not even the moderate users escape harm, no matter how much they pettifog at the bar of their own consciences to prove the contrary.

But aside from the physical evils which inevitably result from the habit there is not a single esthetic argument to be adduced in its favor. It is a filthy habit even with the neatest user; it is disagreeable to every refined taste until the same has been blunted; it makes some sensitive people deathly sick to be in the vicinity of a smoker; it soon scents a whole house so that no inmate can breathe a breath of pure air without going out of doors for it.

Are these reasons to be lightly put aside on the plea of sociability or mere camaraderie?

Finally, imagine Moses pausing to light his pipe before handing down the last of the tablets; or the author of the Sermon on the Mount removing a long nine from his mouth before addressing his disciples; or Paul knocking the ashes from his pipe while he punctuated the Epistle to the Romans!

If your preceptors had not given you the advice you might be excused for calling me irreverent. Their indiscretion makes any such charge quite inconsistent.

Query 161. We live in the backwoods and of course have not seen all the wonders that have been brought forward during the past few years; but we read of them and of course speculate about them.

Among them the X-ray seems to be one of the most important. Tell us something more about it. Is it more piercing and penetrating, that is, more brilliant and glaring than the electric light called the arc light?

Can the physician by its aid see all the vital processes of the body and discover the causes of all diseases?

A little enlightenment on these points will be very much appreciated. F. V. A., Idaho.

Answer.—It seems to be a general opinion among those who have not been informed to the contrary that the X-ray is a powerful luminant, in other words a blinding glare of light far more brilliant than sunlight or the electric arc lamp. This is a great mistake. The so-called X-ray is not a brilliant ray and is, in fact invisible in open daylight as a source of light. It is true it can be made to illuminate dark places, and it pierces solid substances, but it is not in the way that ordinary natural or artificial light illuminates. Without going into technical details which could hardly be made clear in the space available in this column, this ray is "excited," as the electricians call it, by means of an electric current characterized by a system of mechanical interruptions, amounting to from four to fourteen thousand to the minute, projected through a glass vacuum tube or bulb. After the properly intensified and modified current has traversed this tube for a few minutes it (the tube) becomes what is called fluorescent. The onlooker sees it filled with what seems (in a darkened room) a pale green or golden-green vapor which shimmers like bottled moonshine. It does not light the room and can hardly be seen itself except the room be darkened. As thus seen it illuminates nothing; but with the aid of an instrument called a fluoroscope, which of itself is as opaque as the light-excluding box of a portable camera, one looks through almost any opaque substance held in front of and quite close to the vacuum tube. Passing the hand or arm between the fluoroscope and the tube the bones become plainly visible, shading nearly black on account of the earthy material contained in them, while the flesh looks shadowy or filmy and nearly invisible. A fractured bone is thus sharply outlined and its adjustment made more feasible, in complicated cases, than by the touch only. All metallic substances look black, as for instance a ring on the finger. Hence a bullet or other metallic foreign body can be easily detected.

But as to accurately watching the vital processes or detecting the causes of internal diseases the X-ray gives very little aid. Photographs of internal organs can be made by means of the ray, but they are as shadowy as the spook pictures of the pretended "mediums," and do not afford much information as to the nature of diseased processes or organs. They are only lighter and darker shadows and reveal little of value.

THE

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VENTILATION AND THE PREVAILING ABUSE OF THE BREATHING FUNCTION.[1]

By Samuel S. Wallian, A.M., M.D.

One may be excused for approaching the discussion of a hackneyed, overdone and underdone subject, by repeating truisms and trite saws that have become so common as to have almost lost their original significance.

Man is a breathing animal.

He must breathe long before he can eat, and he must breathe persistently and much between feedings, otherwise he can not digest what he ingests.

The human animal can abstain from food for comparatively long periods—to be accurate, for forty to fifty-five days, quoting experiments now on record. He can live without light almost indefinitely, and without water for at least a few days. Without air he succumbs in a few moments. He may with impunity limit his feeding times to one meal per diem, or to three per week, or may safely adopt even longer intervals. He may omit water and other fluids for practically indefinite periods, provided his diet be carefully selected and adapted; but of air he must partake every moment, or die beyond the possibility of resuscitation.

The three fundamental biologic processes are Respiration, Circulation and Assimilation.

These "tritisms" (coining the word), ought not to lose their significance by age, and in view of their vital and universal importance it would be natural to expect the subject of respiration and the quality of the respired medium or element to occupy a foremost position in every treatise on physiology.

Even the most superficial consideration of the subject compels us to admit that respiration is the primary function; that on it all the other functions without exception directly depend; and that in comparison with it the quality, volume and movement of the blood, and the digestive and assimilative processes are necessarily and invariably secondary. For without it as a basis all these other functions would figuratively lapse into organic machinery, dead and useless for lack of motive power.

To determine its relative prominence in leading works on human physiology let us consult Landois and Stirling, a work universally accepted as both authoritative and representative.

In this volume "Respiration" occupies 58 out of its 1138 pages, and its position follows after both "Physiology of the Blood" and "Physiology of the Circulation."

Comparing the space devoted to the different topics, the Circulation occupies 183 pages, and 152 are allotted to Digestion and Assimilation.

The most palpable protest against this inadequate and inappreciative treatment of this vital subject—using the word in more than its conventional sense—is now being heard in the very general outcry against indoor or house-air, and in favor of the outdoor and open-air treatment of chronic diseases, including more especially that fatal and proverbially incurable scourge, Consumption, or tuberculosis. In short, it is now being emphatically charged, and only faintly denied, that the principal factor in the etiology of phthisis is house-air, which is a synonym of impure air. In other words it depends upon persistent abuse of the breathing function, and this is largely due to the universal lack of proper ventilation.

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[1] Read before the New York County Medico-Pharmaceutical League, September 25, 1903.

In view of the prevailing carelessness and vagueness in connection with the use of the word Ventilation, it will not be a waste of time to briefly discuss its meaning.

Back of the Latin root, *ventilatio,* which means an airing, exposing to the air, we have *ventilo,* to set the air in motion, and *ventus,* the wind, or air *in motion.*

The first definition given in the Century Dictionary is, "The act of fanning or blowing;" the second is, "The act or process of replacing foul or vitiated air, in any confined space, with pure air;" third, "Aeration of the blood or body by means of respiratory organs."

It will be seen at a glance that these definitions are radically different from the passive meaning we are so in the habit of attaching to the word when we refer to some indirect and insignificant means of *permitting,* not compelling, the entrance of a little quiescent air into an enclosure.

As we cannot treat of the "Abuse of the Breathing Function" without first considering the means, medium and process of respiration, we are at once brought face to face with the question of Ventilation.

Restricting the word to its modern but absurdly narrow use, the ventilation of a dwelling, factory or public hall, refers to the providing of here and there a small and well-guarded aperture for the inlet of colder if not purer air, and the outlet of that which has become both vitiated and warmed or expanded, inside. Even the slight degree of "airing" or "purification" accomplished is practically accidental. In the average instance little or no provision is made for *driving in* purer and forcing out the impurer air. The entrance and exit of air of any kind is left to chance, and the unintelligently mechanical laws of barometry, heat and cold, and the velocity and direction of surrounding air-currents. It is true that if air of any kind from outside be forced into a room some of the air already in the room will necessarily be displaced or driven out; but it does not follow that the displacement will include more than a proportionate fraction of the impurities present. In fact, as ventilating outlets are invariably placed at or near the tops of walls, if not in the ceiling, it is invariably the lighter and more highly rarefied portions of air that first escape; whereas, the impurities of the air in an inhabited room are, as a rule, heavier than normal air, and therefore tend to accumulate at the lower stratum; hence, they are very slightly interfered with by the entrance of fresh air. In cold weather, in the better class of dwellings, the admitted air is either warmed before it is admitted, or afterwards by means of stoves, open fire-places, hot water, or steam radiators. In summer, in a small minority of dwellings or office buildings, it is either cooled before entrance or agitated by fans, which latter process affords a delusive sense of coolness without accomplishing any real ventilation. In case of previously warmed or furnace air, purity is very bunglingly aimed at by bringing a stream of cold or outside air from a cellar, back yard or other questionable source. This dust-laden and sometimes noxious air being heated, and possibly robbed of some of its oxygen by an overheated furnace, when it reaches the aperture of inlet, obeys the laws of barometry or gravitation and at once rises through the cooler and heavier air met with at the bottom of the room. It has no inclination to disseminate itself horizontally, and the practical result is a current of inflow that makes directly for the higher levels and ultimately for the aperture of exit at or near the top of the room. As the aperture of exit—oftener than otherwise there is none provided—is usually located at the opposite side of the room from the inlet, the warmed current first rises vertically and then crosses the room at the ceiling to find its exit in the direction of the least resistance. If a slightly lowered sash or other accidental means of exit be relied on, some cold air finds its way in but falls at once to the floor, without being appreciably warmed and without accomplishing any general dissemination or commingling with the air of the room. In case of stoves, radiation accomplishes something, but the heated air rises above the stove and cooler air from the top layers falls toward the floor. This resembles real ventilation about as closely as dirty bone-black resembles diamond. Steam radiators, now so generally supplanting the hot-air furnace in cities, do absolutely nothing toward renovating or purifying the air of a room. They insure a passive degree of circulation, but without any effort at renewal. They raise the temperature of the air immediately surrounding them, thus inaugurating a vertical current over them, with horizontal currents at the ceiling and floor, the tendency being to affect the occupants of the room by keeping their heads hot and their feet cool, exactly the reverse of all physiologic requirements. The open fire-places of our ancestors did somewhat better, since they caused a constant outflow of heated air, and thus compelled an inflow from some source. They also did something toward purifying the room by sucking out or burning up the floating and more or less infectious dust that prevails in every human habitation. Even with these, the supply of fresh volumes of air depended upon imperfectly fitting casements, the accidental opening and shutting of doors and windows, or the generally overlooked fact that even the best-finished walls and ceilings are distinctly porous and permeable to air. In truth, but for this invisible and unestimated source of ventilation, inadequate as it is, every modern house would soon be converted into a veritable Black Hole of Calcutta, and the annual death-rate would have to be multiplied by ten, fifty or some other indeterminable factor.

Electricity promises something for the situation, and as we are now watching the widening aurora of a coming Electrical Age, no man can predict the extent or scope of practical results that will materialize within the near future. Hundreds of devices for electrical heating have already been patented, but their physiologic and economic value remains to be demonstrated. From what we now know of this form of energy, it ought to be feasible to accomplish both heating and more or less perfect ventilation in a much better manner than has yet been realized. The electric current, properly adapted and controlled, can be utilized to generate both heat and ozone, a very small percentage of the latter being sufficient to replace the oxygen constantly being consumed in the presence of organic life, and at the same time to destroy noxious exhalations and infectious dust with which it is brought in contact. How soon these results will assume practicable form remains to be seen. Electric heating, it is now claimed, is too expensive for adoption by the masses; but it is only a few years since it was pronounced too expensive for light and power purposes. Another decade of electrical progress may quite revolutionize all the present estimates.

But while electric heating and its involved aid to ventilation will undoubtedly prove a great advance in this direction, it will still fall far short of supplying a perfect substitute for that unstinted supply of pure outdoor air which ought to be the birthright of every human being.

Moreover, in cities, outdoor air is invariably and unavoidably contaminated with organic matter, floating and not always impalpable dust, animal effluvia and infectious germs. However perfectly and liberally it may be introduced into dwellings, halls, factories and institutions, unless some as yet unknown process of filtration and purification be devised, it can never be relied on to accomplish sanatory or in any sense ideal ventilation.

There remains, for cities, one radical and thoroughly feasible method, namely, that of procuring the air designed for respiration from a sufficient altitude to insure its freedom from terrestrial or human contamination and supplying it in ample quantity to every room in which human beings live, work, sleep or congregate. In winter and in cold climates it would need to be suitably warmed, and this can be readily done by processes that could not be questioned from a hygienic standpoint; while in summer, as well as in warm climates, the cool air from the upper strata could be made to control to some extent excessive temperatures as they occur at the surface of the earth.

It is a matter of surprise that the astute and unhampered architects who are given carte blanche when they design palaces for our steadily increasing number of multimillionaires, have not adopted and perfected this idea. It is even more wonderful, in this intensely commercial age, that the projectors of ambitious and disfiguring skyscrapers now shooting up in various portions of this city, have not made this suggestion a feature of their inartistic tombstones to the spirit of Art and Architecture. Pure air could thus be easily obtained in unlimited supply, could be warmed when necessary by the same apparatus now used to supply steam heat, and this regulated by automatic devices such as are now used to regulate the working of hot-air furnaces. There is nothing Utopian in the suggestion, since it would require nothing not now available except the erection of capacious shafts in place of the delusive makeshifts now called air-shafts, that the law requires to be provided in every building.

The down-flow of cool and practically aseptic air would be a very simple matter as soon as these tubes could be supplied, since the removal of air from the bottom of each tube or shaft would automatically bring down an inexhaustible supply. Furthermore, there could never be any successful attempt at monopoly, since the relay of uncontaminated air would forever remain as free as the wind and beyond the control of corporations or the caprice of scheming speculators, who live, move, and have their being by creating "corners."

There is another phase of the subject that is seldom even remotely referred to in text books on physiology. It may be thus stated:

The breathing function involves much more than merely the rhythmic filling and emptying of the lungs. More, perhaps, than any other animal, man breathes with his skin—or would do so if habit and conventionalities permitted a greater freedom from the impending handicap of improper or excessive clothing. So-called "weak lungs" are frequently if not invariably a direct result of an inactive or incompetent cuticle. Under proper and what ought to be normal conditions oxidation in the lungs is materially supplemented by cutaneous endosmosis. When this supplementary and auxiliary function is interfered with or inhibited the lungs are compelled to do extraordinary duty, and in time, especially in weakly endowed subjects, they are sure to show the effects of overwork, when too much prolonged, effects from which they cannot recoup themselves.

Undoubtedly we have become habituated to too much clothing and to that which is not sufficiently pervious to air. The poorest workman has his rubber boots and oilskin coat, while the society swell puts on cravenette or air-tight repellents every time the sun goes under a cloud. We do not, it is true, know much about the original man or his habits, but we may be positively certain that he did not cheat his skin of its daily and hourly air-bath, did not overwork his lungs by compelling them to do the shirked function of a coddled cuticle, did not spend ninetenths of his time indoors or within his cave, and *did not die of tuberculosis.*

But this opens up a side topic that needs further study and requires too much space to be treated in this connection.

Father Kneipp's "cure" depended essentially on better aeration of the whole organism. This he and his followers accomplish by baring the feet, prescribing frequent baths, during which the whole body is for some time exposed to the air, by regulated diet and exercise; but above all these auxiliaries is undoubtedly the better aeration secured.

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ABOUT COFFEE.

By Lawrence Irwell.

In the wild state Caffea Arabica is a slender tree fifteen to twenty-five feet high, with few branches; in cultivation it is seldom allowed to become more than from six to ten feet high, and is made to assume a sort of pyramidal form with horizontal branches almost from the ground. Although a native of Abyssinia and Arabia, it is now naturalized in many tropical countries. The leaves are evergreen and leathery; the flowers are small, fragrant and white. The appearance of the tree is pleasing. The fruit, when ripe, is of a dark scarlet color. The seeds are hornlike and hard, and are usually called coffee-beans, not from any resemblance to beans, but from the Arabic word *bunn*, which means coffee. The seeds are also (quite incorrectly) called coffee-berries. The early history of the coffee tree is not very clear. It was not known to the Greeks or Romans, but in Arabia it was cultivated in the fifteenth century. Toward the end of the seventeenth century, plants were taken from Mocha to Batavia (Java) by Wieser, a burgomaster of Amsterdam, and from the botanical gardens at Amsterdam, the Paris garden obtained a tree. A layer of this was carried out to Martinique in 1720, where it succeeded so well that in a few years all the West Indies could be supplied with young trees. In commerce, the following varieties of coffee are distinguished from one another: Mocha, which originally came from Arabia, and is known by its small beans, inclining to greenish in color; Java or East India, which has large yellow beans; Jamaica, with beans somewhat smaller and greenish in color; Surinam, which has the largest beans; Bourbon, with beans pale yellow in color, sometimes almost white. The coffee-tree succeeds where the temperature of the year ranges from sixty to ninety, Fahr. It flourishes best in a sandy or gravelly soil, well drained, and on high lands or hill-ranges from a thousand to three thousand feet above the sea. In Peru and Ecuador it is acclimatized at an elevation of six thousand feet above the sea, where, however, frost never occurs. The fruit is ripened in hothouses. Coffee plantations are laid out in much the same way in all countries. One-year-old trees, twelve to sixteen inches high, are set from the nursery. They need shade at first, and in a hot, dry climate shade is never a disadvantage. They are usually pruned to the same height, and the ground between them is carefully kept clear of weeds. Where the climate is dry, abundant irrigation is necessary, but the supply of water is cut off as the fruit begins to ripen, in order to improve its quality. The tree yields its first crop in the third year, and the crop from a full grown tree may amount to five pounds of coffee beans. But this will only occur in the most tropical climates and in favorable seasons. From one and a half to two pounds is an average yield. The life of a tree is forty years. As a tree continues flowering for about eight months, its fruits are of very unequal ripeness. In the West Indies and Brazil three gatherings are made, annually. After being gathered the beans are placed on mats specially adapted for the purpose, where they are dried by the sun's rays, meanwhile being frequently turned. They are then passed between rollers to remove the dried pulp of the bean and the membrane which encloses the seeds themselves, the coffee afterwards being freed from impuritiles by winnowing, and conveyed in bags to the seaports. As equal care is not bestowed upon the preparation of it in all places where it is cultivated, there are great differences in quality and prices.

The use of coffee as a beverage was introduced from Arabia into Egypt and Turkey in the sixteenth century. Leonhard Rauwolf, a German physician, was probably the first to make coffee known in Europe by the account of his travels, printed in 1573. Soon after the first introduction, coffee-houses arose almost everywhere. The first in Europe was established at Constantinople in 1551. In London the first coffee-house was opened in Newman's Court, Cornhill, in 1652, by a Greek named Pasqua. This Greek was the servant of an English merchant named Edwards, who brought some coffee with him from Smyrna, and whose house, when the fact became known, was so thronged with friends and visitors to taste the new beverage that, to relieve himself from annoyance, Edwards established his servant in a coffee-house. The first coffee-house in France was opened at Marseilles in 1671, and in 1672 there was one opened in Paris, which soon had several competitors.

In Eastern countries coffee is not usually prepared as a beverage in the same way as in Europe, except by Europeans. A decoction of the unroasted seeds is there generally drank; and in some cases the pericarp, with the dried pulp roasted, is employed.

The great demand for coffee has led to the employment of a number of cheaper substitutes, of which chicory root is the best known. It is quite harmless, and it makes a drink not unlike the genuine article. Of other substitutes, dandelion root, carrots, and various cereals may be mentioned. They are all prepared by roasting, like coffee. The seeds of *Astragalus Boeticus* are known on the continent of Europe as Swedish coffee, and are said to be the best substitute for coffee yet discovered. But all the substitutes lack the most important constituent of true coffee, viz., caffein, and are therefore very different from it in their true qualities. Coffee is subject to much adulteration, most of the articles mentioned as substitutes being employed for this purpose. The chief substance used in mixtures is chicory, which is believed by many to improve the taste of the beverage. Its employment deepens the color. A variety of coffee known as Liberian, a native of West Africa, is being introduced into some countries, particularly into Ceylon. It is a decidedly coarse variety, but up to now it has withstood the ravages of the leaf disease which had nearly destroyed the coffee plantations of that country. The leaves of the coffee trees are used in the western part of Sumatra instead of the seeds. They are prepared by quick drying in a manner similar to that in which tea-leaves are prepared by rapid oxidation, and in this condition they contain even a greater proportion of caffein than the coffee-beans. It seems not improbable that the use of the coffee-leaf may yet extend very much.

Unroasted coffee has on an average the following percentage composition: water, 11.2 per cent.; protein, 12.1 (including caffein, 1.2); nitrogen-free extract, 42.3; crude fiber, 19.9; ash, 4.7. Of the total material, some twenty-five per cent. is soluble in water, half of this being nitrogen-free extract. When the beans are roasted till they assume a reddish brown color, they lose fifteen per cent. by weight, and gain thirty per cent. in bulk; when roasted till they become chestnut-brown, they decrease twenty per cent. by weight and increase fifty per cent. in bulk; while if the roasting is continued till the beans become dark-brown, they lose twenty-five per cent. in weight and acquire more than fifty-five per cent. in bulk. The roasted beans should never be made darker than a light-brown color, which is quite sufficient to bring out the excellent aroma and other qualities of the coffee. When the roasting is carried further, more or less charring is the result and a disagreeable burned smell is produced, which tends to overcome the natural pleasant aroma. The improvement in flavor by roasting is probably due, in part at least, to the formation of caramel.

Coffee does not retard the action of the bowels as strong infusions of tea tend to do, partly because there is less of the astringent principle, and also owing to the presence of the aromatic oil which has a tendency to move the bowels. The important duty which coffee fulfils is to allay the sensation of hunger. It also produces an exhilarating and refreshing effect; and some authorities consider that it diminishes the amount of wear and tear, or waste of the human organism, which occurs to some extent at every minute of our lives. The grounds of coffee are nutritious, containing considerable protein, and some of the Eastern nations take advantage of this. The coffee is ground very fine and allowed to remain in the infusion, being consumed with it. In most respects coffee possesses properties similar to those of tea. It contains, however, less tannin, which as already noted is an astringent and interferes with digestion, if consumed in other than limited quantities.

The nations of the Orient, generally, either follow the usage of the Turks, who drink their coffee thick with sediment, or that of the nomadic Arabs, who make it from the dried pulp, in much the same manner as tea is prepared in Western countries. A more curious method is that of the Somali (natives of West Africa), who boil the berries in oil, and soak maize in the mixture. The Norwegian peasants usually add a small quantity of butter to the beans while roasting in the simple apparatus, resembling a covered frying pan, which they use, always shaking it while over the fire. The superior quality of the coffee obtained in small hotels in France and Germany, as compared with that often obtained at high-priced establishments in the United States, is chiefly due to the use of the freshly roasted and ground coffee—domestic roasting being common in the former countries. Raw coffee beans are improved by age, but roasted beans quickly deteriorate.

The world's coffee crop for the year ending June 30, 1901, was (in round figures) 14,500,000 bags of 132 pounds each, equal to 1,914,000,000 pounds, of which Brazil produced 11,000,000 bags, as against 3,500,000 produced by all other countries combined. The Brazilian crop of this year (1901), the marketing of which was completed by July 1902, was a record crop, and was estimated commercially at about one and a half billion pounds. The production of coffee in Brazil has doubled within ten years, and has, within the past five years, twice equalled and once surpassed the amount that a few years ago constituted the entire world's crop. The people of the United States are great coffee drinkers, and the imports during the calendar year 1901 exceeded all previous records, amounting to over one billion pounds, valued at $70,156,000, as against 786,000,000 pounds, of the value of about $60,000,000, in 1900. Of the 1901 imports 951,500,000 pounds came from South America. There are evidences that coffee production is exceeding the demand, and there are large supplies of the lower grades in the leading markets. In addition to Brazil, large exportations are made from Mexico, Java, India, Ceylon, Hawaii, West Indies, and Sumatra. The importation to the United States for the years 1895-1899 inclusively averaged 734,500,000 pounds, of the annual value of $76,500,000. Deducting the amount exported, the annual consumption per capita is nine pounds, which is, curious to relate, the exact amount of tea per head consumed on the Australian continent. Great Britain consumes about six pounds of tea per capita, and less than one pound of coffee. In the United States little tea is indulged in—about one and a half pounds per head of population. The greatest coffee drinkers in the world are the people of Holland, who are reported to consume twenty-one pounds per capita.

The Hawaiian Islands are now United States territory, and the exports of coffee from these islands in 1901 amounted to two and a half million pounds, of the value of $311,000. The production of the year named was greater than that of any preceding year in spite of unprecedentedly low prices. The downward trend of the prices of all grades of coffee since 1895 has brought ruin to small planters in Hawaii. Only those continue in the business who have sufficient capital to tide over years of depression, or who are content to sell their coffee at the bare cost of production. In most of the coffee districts the owners of the largest tracts of land have ceased to cultivate their plantations, and have ceased to spend money on the harvesting of the crop, allowing the beans to go to waste unless they are able to get Portuguese laborers to harvest the crop on shares ranging from one-half to four-fifths of the yield.

In Porto Rico the coffee plantations have to a considerable extent recovered from the effects of the hurricane of August, 1899, and the crop of 1901 reached nearly its normal amount, but was marketed at very low prices. As Porto Rico is now a United States dependency, its coffee may perhaps be shipped in considerable quantity to North America. Prior to 1898, however, the island sold most of its product to Spain, Italy and France, at prices varying between twenty and thirty-five cents per pound. During 1901 the price received averaged only twelve cents.

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CHLORID OF SODIUM.*

By Brose S. Horne, M.D.,

Marion, Ind.

With a wide and diversified field, investigators in any science overlook, more or less, certain facts that are of vast importance to that science. The evolution of truth may be slow, but it is sure. As long as superstition controls progress is checked. As soon as true knowledge governs there is rapid progress. The science of medicine, in order to hold its name, must be based upon nature, with one primary object in view, *i.e.*, to *sustain the vital forces*. Harsh methods can no longer benefit the race. All sincere students to-day are devoting their time and energy in order to discover how to assist nature.

If we examine almost any animal fluid or tissue, what do we find by analysis in the substance? *Chlorid of sodium*. In the food we must have common salt. The theory has been held for years that this substance, salt, serves to aid osmosis. There is not the slightest doubt whatever but that sodium chlorid is one of the life principles. We are inclined to look upon salt as a food, which is proper, but on account of the fact that it is so frequently forgotten that people do not appreciate how essential it is to the well-being of all, sick or healthy, it is best to look on it as a medicine, often a life restorer, harmless in action, but powerful in doing good. Cases of sickness that have suffered for days and weeks have improved wonderfully in twelve to twenty-four hours by being given common salt.

Chlorid of sodium has powers of stimulation and invigorates sluggish cells. In the study of cell life we discover that a dilute salt solution will stimulate. Protoplasm can be reduced to a dry state, in substance killed, as we use the term, and an application of the diluted saline solution will at once stimulate and give it motion. The stimulation is not harsh, does not act like a mechanical stimulant, but, on the contrary, resembles the action of a mild current of electricity. We are told that water itself stops the motion of the ameba, but what does a solution of salt do? Revives and stimulates instantly. In other words, we find that in the simplest form of life chlorid of sodium produces motion in motionless matter. The savage judged life by motion. A thing to him that moved he said had life. A thing that did not move was dead. And thus did animal man, through thinking man, distinguish between life and death. Salt gives life to apparently dead cells; it reinvigorates and stimulates by electro-chemic changes, acts upon the nutritive powers, demonstrates its undisputed right to act, and to be considered one of the life principles.

Every cell has a certain vital activity. The destruction or partial cessation of this activity causes an alteration in structural growth. Sodium chlorid, by electrochemic changes, produces stimulation and increases vital energy of the cells, and thus promotes the restoration to healthy activity.

In common salt we have a substance that restores activity to the dormant ameba, which also stimulates and revives the anima of animals and plants. It is a powerful preservative, preventing putrefactive changes in meats, etc.

Waste and repair are constantly companions in what we call growth. As long as repair exceeds waste healthy growth is maintained. If waste succeeds as a result we have decay, disease and death. By a peculiar and inherent power of its own pure sodium chlorid stimulates the forces of growth and has a tendency to prevent decay. Salt itself has certain powers of growth, differing, of course, from that of life. It is a form of lifeless growth that it manifests. Kirk says: "A crystal of common salt, if placed under appropriate conditions for obtaining fresh material, will grow in a fashion as definitely characteristic and as easily to be foretold as that of a living creature."

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* *Cincinnati Lancet-Clinic.*

By coming in contact with certain other substances, living cell tissue, etc., in the human economy, and by some process of electro-chemic change, there is a possibility that there is a form of animal electricity formed or generated that is near akin to life itself. Of course, all must admit that in our experiments with the ameba, or the lowest form of life, we are not dealing with man, the highest form of physical and mental evolution, but nevertheless it is life in a primary form just the same, and our experiments here, in the lower stage, may give us a clue to a more wonderful discovery higher up in the scale of evolution.

The practitioner is more concerned with the clinical value of sodium chlorid and he can well afford to be, because one-half of its great value has never been discovered. Many mothers have learned from the school of experience that infantile dyspepsia can be cured by the addition of a small amount of salt to the milk in the nursing bottle. It is of value in the cure of ague. I know of several individuals who were cured by a practitioner in this country by being given a drachm of salt each morning. In the Southwest it was used with success in the old shaking days. Many have claimed a cure for chronic conjunctivitis by adding ten to twenty grains of sodium chlorid to one ounce of water. I myself have had wonderful results in the cure of chronic rhinitis by having the patient wash out the nose each morning with a hot solution of salt water.

Salt was used as a vermifuge by Celsus. It was used successfully for the same purpose by Brera, Heberden, Rush and Barton. Dr. Beck, 1861, says in his materia medica that in Ireland the use of it for this purpose was an old practice among the common people. Bartholow says: "It has an unquestionable and important office in the economy. It forms the principal part of the soluble constituents of the ash of all animal substances. Albumen owes its solubility in part to the chlorid of sodium; it dissolves pure casein, and impedes the coagulation of the fibrin of the blood. In one thousand parts of blood there are about four parts of this salt. It is very abundant in various normal secretions and pathological products. The gastric juice is very rich in chlorid of sodium, and it probably is the source of the hydrochloric acid of the stomach."

In extremely large doses this drug is an emetic and cathartic. It is also a powerful and a natural antiseptic, being far superior in this respect to many of the highly praised and widely advertised so-called antiseptics. This remedy is one of the many that are impossible to classify. It is an emetic, cathartic, refrigerant, antiseptic, astringent and anthelmintic, depending on the dose, the purity of the drug, the mode of administration, etc.

In doses from five to twenty grains Ellingwood says it cures some cases of constipation. It is used successfully in intermittent fever, hemoptysis, etc. Hot solutions can be used with success externally for general local inflammation of the lungs, liver, spleen, pleura, peritoneum and kidneys—in fact, of any part of the body. It is used as a gargle with marked results.

Chlorid of sodium is the curative principle, assisted by suggestion, of all the many medicinal baths that are advertised. One pound of salt added to three or six gallons of hot water gives you a sea water or Hot Springs bath at home. One writer says that it is our greatest remedy for acute or chronic catarrh, dissolved in hot water and used by nasal douche.

The stimulating properties of sodium

chlorid can be appreciated in sudden shock of any kind or degree. It need not from necessity be injected into a large vein, as has been advised in the past, but can be injected into the cellular tissue beneath the skin with good results. It stimulates the functions of the medulla oblongata, acts upon the sympathetic nervous system, and thus the sudden suspension of the functions become active again. Rectal injections often give relief, and are invaluable in the treatment of any disease where there are anemic conditions.

This drug or food has been used almost from time immemorial with success. Man, like all animals, must have his salt to sustain his physical and mental growth. Show me a successful stock raiser and I will show you a man that has his salt near at hand to feed his stock.

History tells us that Dioscorides and Pliny spoke of the value of salt. Pliny observed its wonderful influence upon grazing animals and appreciated what a great benefit it would be to man. The National Dispensatory says: "According to Dioscorides, salt is drying, astringent and tonic. It preserves animal bodies from putrefaction for ages. Medicinally, it is stimulating, cleansing and resolutive." But I am sorry to say that this book has not investigated any since the days of Dioscorides, and can give us nothing original.

By mixing salt with various oils it was also used for the stings of insects. Salt is the direct antidote of nitrate of silver. It can be used with benefit as a wash for sore throat, ulcers, etc.

A strong solution of salt has a stimulating action on the skin, and when used in bathing, in proper proportions, it is of value. Enemas of salt water have a stimulating effect. In many chronic diseases hot salt baths, in conjunction with dilatation of the internal sphincter—the orificial method—is the only treatment necessary. There are thousands of people in this country who are physical and mental wrecks, who are now medicine fiends, who could be cured by these simple and natural methods.

I have demonstrated it to myself and others, time and time again, that lavage with hot salt water and high colonic flushings with the same are a cure for not only acute and chronic gastro-intestinal catarrh, but many other anemic conditions as well. I can call to mind many prisoners who were suffering from what is called general-poison anemia that were cured and became fleshy under hot salt water lavage, colonic flushings and orificial treatments.

As a local disinfectant hot salt water, with a few drops—say three or four—of the oil of cinnamon added to each quart of hot salt water, has no superior. It is pleasant, safe, effective, and far superior to corrosive sublimate. Wherever a disinfectant is needed this is the best. It can be used after parturition with success. In a cut a cloth moistened with this solution and applied will prevent evil results and aid the healing processes. In washing out the nose this solution can be used, the oil of cinnamon making it more pleasant.

Chlorid of sodium, like all other substances, can be abused by indiscriminate use. When used to excess it increases waste and lowers vital energy. In other words, it overstimulates cellular activity.

In pneumonia we are told by Bartholow that in the course of the inflammation the chlorid of sodium of the system accumulates in the inflamed area and disappears from the urine. Its return to the urine is in the nature of a critical phenomenon, and marks the subsidence of the inflammation. At this time the system, possibly, could endure large and even enormous doses, but the object of treatment is to assist nature. I am satisfied that in chlorid of sodium we have a wonderful remedy, but I firmly believe that its direct action must be studied.

For the purpose of treatment the administration by the mouth is not as curative as is the hypodermic method. For incipient phthisis, for pneumonia, acute or chronic, and for many chronic diseases with anemic tendencies, I believe that a hot solution of chlorid of sodium given with a hypodermic syringe will cure when all other methods fail. The strength of the saline solution should depend on the case under treatment. Nothing but distilled water should be used. A warm solution of salt water may be injected into the cellular tissue of the abdomen three or four times a day. At first I have commenced with five grains of sodium chlorid for each injection, repeating four times a day. The dose can be increased or diminished as required. Several cases I have had under observation improved rapidly by the hypodermic injection of chlorid of sodium. Only the purest drug should be used, and for success the physician should have the assistance of some reliable chemist. My investigations lead me to believe that we have a wonderful remedy in the simple chlorid of sodium.

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DR. GULICK ON PHYSICAL TRAINING.

The following thoughtful and impressive words are from an address of Dr. Luther H. Gulick at a reception and dinner given to him recently by the physical directors of the public schools of New York. They contain so much of value concerning the necessity of physical training of the young, especially of growing school children, that we are glad of the opportunity to add to its deserved circulation. The address from which we make copious extracts was published in full by *Mind and Body:*

Our work is pre-eminently one of the great problems of modern city life. It is easy to deplore the city; we long for the conditions under which our ancestors lived —green fields, ample houses, noble fireplaces, direct contact with the fields, and association with domesticated animals.

The city rushes; it seems never to rest. We call it a biological furnace. We speak of our cities as the breeding places of iniquity and blots upon the fair name of civilization; but this is a partial, a half truth; our faces must be turned to the future. Even if we grant all that has been said relative to the evil of the city, there remains a larger, deeper, and more far-reaching truth. Every great change, every step of progress in the world's evolution leaves the great mass of us with our faces turned toward the past, deploring the evils of the new conditions to which we have not yet become adjusted. It is a glorious thing to live in this day and in this city.

This is the age of the city. The world's consciousness focuses in the city. Its life here has a significance and intensity which in the past ages has been diffused and relatively unconscious. The city is focusing the world's consciousness. Last century less than four per cent. of us lived in the cities; now upward of sixty per cent. of us live in the cities. More business can be done in one day now than could be done in a week a hundred years ago. The media of the transmission of news, for the extension of knowledge, all admit more rapid life, larger life, and more compact life. Every new era in the history of evolution has meant readjustment. The readjustment of the human race to the city involves in many respects a larger readjustment, a greater crisis of human affairs than has occurred since the dawn of history. A fundamental test of our civilization is as to whether we can live permanently under what are at present the abnormal and unnatural conditions of city life. Of all the great countries in the world it seems that the United States is to try, on the largest scale, and under conditions of the greatest freedom, the experiment to demonstrate the kind of life which the world is to live. The older countries of the civilized world seem to be bound by tradition so that the steps we take with ease and rapidity are there taken with pain and slowness. But conditions even in the United States are not equal. Many of our cities are still so young that work upon them seems to be practically ineffective. They are so plastic that nothing is permanent. Everything is in a flux. But this superb city in which we are living has passed beyond the stage of fluid adjustment. Or, to change the metaphor, it is no longer in the unconscious period of babyhood; it has reached adolescence. It seems as though the great lines of permanent life of this king city of our hemisphere are now being blocked out. Even on the material side, with tunnels and bridges, with parks and city architecture, with educational and social relations, all being either remade or readjusted, we appear to be in the condition—that critical condition—of settling the lines of future growth. This is the time, ours the generation, for the formation of material conditions and the development of social traditions which shall be effective through the long generations of the future. Our generation for the first time meets the city problem on a large scale. The answers which we give to the problems propounded to us by the conditions of the city are to be measurably the answers which shall determine the character of our civilization. If the United States is the most significant country, and in the United States our New York City is the most significant city, then the privilege of here and now working out a fundamental problem is a privilege of the ages.

Gerald Stanley Lee has called our attention to the significance of making the city beautiful that it may adequately express the superb life of the day. It is my privilege to-night to call your attention to the potentiality of the city with reference to the maintenance of superb health, to the development of a higher type of manhood and womanhood—a type having greater power, a type having a more intense and powerful personality. If it is true that man's personality has ever corresponded to the increasing complexity of his environment, then the type of personality which will ultimately be developed by the city will be largely more complex, more powerful, and more healthy than any personality which has been produced in the world so far. Our faces are toward the future, not the past. The past was good; the future is better. The evil of the city is temporary; the good is permanent. The evil of the city is a problem for solution; the good of the city is a power for mastery. The city represents opportunity, such opportunity as is new in the world's history. The consciousness of the world, the moving Zeitgeist, seems to be focused and epitomized by this great, ugly, beautiful, patient, irritable, majestic, magnificent city.

It is our function to help answer the question as to whether human kind can permanently maintain, the higher, faster, psychic level and pace of city life. Those of us who are working at this problem may be divided into three groups:

1. Those who are concerned directly with the cure of disease—our body of physicians, a strong, able, numerous, well-equipped class—they are doing noble work. To cure disease is dramatic. It always has and always will command the immediate attention of the world. But it is, on the whole, a mending process, a patching process, by which existing machines and boilers may be induced to go on somewhat longer and work.

2. The second class is composed of those who are concerned with the prevention of disease. These persons, these boards, are concerned with the purity of the water supply, the prevention of the spread of contagious diseases, the exclusion from our city of foreign scourges of disease, the supply of pure food supplies, and the like. Their work is great. It has already in civilized lands largely prevented the disease scourges which have decimated whole peoples in former times. Even such tragedies as that which recently occurred at Cornell are trivial as compared to those which have swept Europe during previous ages. This work of preventing disease is less dramatic than that of curing disease, but is more fundamental, more profound. We all of us know, nevertheless, of people for whom these two classes of agents have done all that is possible. They have no specific disease to be

cured; they are surrounded by the wall of protection with sufficient care and thoroughness, so that they are not exposed to the ordinary sources of disease; still they lack power and vitality. The fundamental conditions of life are somewhat not adequately met. Their lives are dominated by the necessity of caring for themselves; they have but little energy for work; they are unable to rear strong offspring, if any; they are liable to be upset by any and every irregularity in their course of life; they lack power; they lack vitality; they lack the power to live full, rich, effective lives.

3. The third class of persons to which I refer are those who are engaged not in the cure of disease, directly, but whose work consists in developing within the individual to the maximum the power of life, treating each individual, so that his may be the conditions under which the greatest power of living shall be developed. Theirs is a work of biological engineering. The city has presented new problems to this class of engineers. The sewage system, the elevated railroad, the tunnels, the buildings of the city, have all presented fresh problems to our mechanical and civil engineers and architects. New conditions have had to be met. And so with those of us who are concerned with the foundations of human life itself, the city presents new conditions. These conditions have taken away the world's muscular work and are doing it by machinery. In the United States there are ten and a half horse-power, steam-power, for every man of us, and yet it is through muscular work largely that the muscular strength of the men of the world has been in previous ages developed. How long will that muscular health and power which has been developed in connection with muscular labor be maintained without such labor? How many generations can we live without doing this muscular labor? The records of older cities, Paris, London, and Berlin, seem to show that three generations of city life are sufficient to exhaust the strongest stock.

Coincident with this taking away of the world's muscular work, we have increased many avenues for nervous expenditure. The news of the world is brought to our doors daily, almost hourly, by the daily press, steam, or electricity. Our hearts throb with the passions of the whole world; action is immediate and necessary; consciousness is intense. These conditions we who are concerned with the maintenance of health must face in a new way. Individuals must come into the world's work with strong, enduring natures. That is, the period of childhood and youth must be so administered that the maximum power and health shall be developed. As Superintendent Maxwell so well remarked at the dedication of the Wadleigh High School: "It is not sufficient that the boys and girls of our high schools shall graduate without breaking down; they must graduate with a maximum of health and power for the world's work." There is no other subject in the whole curriculum so basal as this. In fact, it is not difficult to show that all of education is worth but little, if it is won at the sacrifice of health. The primary condition for success in business, in the professions, or in life itself, is not the knowledge which comes from books. The primary element is capacity for intense, prolonged work, and this is related primarily to health. It is not a question of how time may be found in the curriculum for physical training, but a question of what time is really necessary to be taken for physical training, and the adjustment of the rest of the curriculum to this.

It has been demonstrated beyond peradventure of cavil that muscular exercise, adequate in kind and suitable in quantity, is one of the fundamental conditions to physical health and power. During the past ages of the world children have secured muscular labor by play and by co-operating in the work of their parents. It is no longer possible for boys and girls to get adequate exercise in the original way, doing chores about the country farm, co-operating with the father as a laborer, and in work about the home. That no longer suffices. The chores of the world can no longer be used as muscular exercise for the boy; and assisting in the domestic work of the house is no longer an adequate source of muscular exercise for the girl. The conditions under which the great traditional plays and games of the world have been developed have also changed. Hide and seek, tag, ball games, swimming, running, and the like, all demand ample space for their adequate development, and the city lacks space. Even where there is time, our city children are not in possession of play and games which are adequate for physical development under said conditions. This city brings large numbers of children together. This in itself produces social friction and expenditure of power.

We have seen thus far that with the development of the city we need a higher type of man, keener and tougher—a man who constantly lives at his best, who is able to fix all the powers of his being on intense effort, a man who lives finely and well. We have seen that this power must be developed during the growing period of life. We have seen that the city conditions have taken away the chief elements which have been of service in the history of the world in developing this vital power in the young. It is now our problem as biological engineers to face the situation, to show what needs to be done and to carry it out that our children shall, under the conditions of city life, not only maintain the average health of the past, but become stronger and finer children than the world has ever seen before, children who as men and women will be adequate to the superb opportunities of the city of the future. This is not the occasion for any complete discussion as to the treatment of this problem in biological engineering. Its five main lines may perhaps be briefly referred to.

Our first proposition is that children of the city are without much necessary muscular exertion and without opportunity or incentive toward much voluntary muscular exercise through adequate plays and games. The first necessity, then, for us as physical trainers is to provide for the development and fashioning of out-of-school plays and games that shall engage large numbers of children, which shall be as interesting as the traditional games of the past have been, which are as adequate for the development of the body as the old games were, and which shall be feasible under the conditions of city life. Our primary dependence upon general muscular exercise can never be in enforced gymnastics. A careful watching of a day's average play of a boy or girl under normal conditions indicates that two, three, or even four hours per day of active exercise alone is adequate, and to have this amount of exercise as formal gymnastics is wholly out of the question. Gymnastics can never take the place of play, and upon play we must depend in the future, as we have done in the past, for the fundamental conditions for the development of organic life and power.

Second, children sit at the school desks approximately five hours per day. Sitting, and particularly writing and reading, is biologically abnormal and tends to the induction of positions of the body which restrict circulation, respiration, and assimilation, the three fundamental biological processes. The school desk seems to be necessary. It must be met by frequent breaks throughout the school day, when the individual will rise, will vigorously exercise the muscles which counteract the desk attitude and which will at the same time increase the circulation and respiration.

Third, in order to develop conscious control of the body, the maintenance of good position of the trunk, a large part of the forms of formal gymnastics which are distinctively educational in their character, which shall progress from year to year in their educational demands, which shall secure that prompt response of body and mind, that immediate control of all parts of the body as well as that organic vigor which we have seen to be connected with such gymnastics.

Fourth, there must needs be throughout the day one or more brief periods given completely to mental relaxation. Gymnastics involve as keen if not keener conscious attention than any other form of education, and to substitute gymnastics for recreation is to make a fundamental mistake. The old-fashioned recess no longer gives the old-fashioned recreation. The large numbers of children engaged at a time, the limited space available for their play, their lack of games suited to their conditions, make the recess of doubtful value under present conditions. Accordingly, a definite part of the program of the future will be to provide such plays and games as are suitable under the conditions of the city school which shall be genuinely play, but the traditions of which shall be carried out by the teachers. In suitable communities there always arises a group of play traditions adapted to the environment of that community, and these traditions are passed from generation to generation of child life. But the conditions of cosmopolitanism in New York, of newness in environment, have not yet permitted the development of these games, and where some have been partially solved the size of the city prevents their rapid spread throughout the city by the personal contact of the players. Hence, it is imperative that there be some more adequate means of social traditions for these plays and games than is afforded by the children themselves. Organized plays and games for mental relaxation available under conditions of school life, both temporal and special, seem to be an essential part of our necessity.

And lastly, there are no average children. Children, like adults, are all individuals, and excel or are weak in specific qualities. But within certain well-defined lines, children between certain ages work together readily. They keep step in physical, mental, and moral progress in the main. But there are always individuals who depart so far from this normal and ordinary rate of progress that it is prejudical to them, and also to the others from whom they differ, to make the attempt to keep step. Some with exceptional speed and power can outstrip their fellows. Others, because of congenital peculiarity, or because of tragic condition of their early lives, are deficient. These need segregation and that emphasis upon physical health and physical education which Seguin, Wey and others have so amply demonstrated to be a primary condition to the most wholesome development of these individuals. To co-operate in the segregation and training of these individuals that they may, so far as possible, ultimately come into condition for self-support must be a definite and important part of the work of this department.

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DISEASES OF THE PANCREAS.

In discussing the present position of our knowledge of diseases of the pancreas, Mr. Moynihan (*London Hospital*) draws attention to the results of experimental work on that organ. Thus it has been shown that total extirpation of the pancreas causes all the symptoms of diabetes in addition to digestive disturbances. If only part of the gland be removed diabetes does not occur. Subcutaneous grafting of a portion of the pancreas, if the graft survives, will prevent the symptoms of diabetes even if no portion of pancreas be left in the abdomen, but on removing the graft in such a case glycosuria develops.

Ligature of the duct of the pancreas does not cause the duct behind the ligature to dilate, neither does it cause diabetes, although it gives rise to chronic interstitial inflammation in the gland. The explanation of diabetic manifestations occurring under certain pathological conditions affecting the pancreas, and not under others, is that the interlobular groups of cells alone, known as the islands of Langerhans, are those that control metabolism by means of an internal secretion, and that it is necessary for these cells to be rendered functionless before pancreatic diabetes can occur. In the pancreatitis which follows ligature of the duct these islands of Langerhans for the most part escape, and therefore glycosuria is not brought about.

The symptoms of pancreatic disease Mr. Moynihan places under six heads, namely, glycosuria, hæmorrhage, fat-necrosis, altered character of the stools, alteration in the constituents of the urine, and wasting. Taking these in order: Glycosuria, as mentioned above, is almost certainly due to alteration in the islands of Langerhans. Hæmorrhage may occur with acute, subacute, or chronic inflammation, although any of these forms may occur without any evidence of local bleeding. Experiments have shown that hæmorrhage may be brought about by the injection into the duct of Wirsung of the bacillus diphtheriæ, or of the bacillus pyocyaneus. In certain diseases of the pancreas there may be a general hæmorrhagic tendency, which is much increased by the presence of jaundice. In the process of fat-necrosis the fat is split up into fatty acids and glycerin, the latter of which is absorbed; and one theory which has been put forward to explain the occurrence of hæmorrhage in pancreatitis is that it is due to the absorption of the glycerin.

The fat-necrosis or saponification is attributed to the escape of the fat-splitting ferment of the pancreatic juice, and it has been shown in cats that by causing the whole of the secretion of the pancreas to penetrate into the surrounding tissues, saponification results, not only in the abdominal fat, but in the fat of the pericardium and subcutaneous tissue as well.

Absence of the pancreatic secretion from the intestine results in the passage of clay-colored stools. In this connection it has been demonstrated that the color of the fæces in health is due, not to the bile-pigments which are absorbable, but to an insoluble pigment which is formed by the action of the pancreatic juice upon some of the coloring matters of the bile. A deficiency either of the bile or of the pancreatic juice will therefore cause the fæces to be unpigmented. It is well to remember that the pancreas has two ducts, the duct of Wirsung and the duct of Santorini, and that both must be blocked, or the gland so altered that it ceases to secrete, if the above symptom is to occur. The presence of undigested muscle fibre in excess, and also of fat, is found in the stools where there is an absence or deficiency of pancreatic secretion. The main alteration to be found in the urine is a reduction of the ethereal sulphates.

With regard to the wasting, in Mr. Moynihan's experience the rapidity with which the body-weight declines in cases of pancreatic disease can only be matched in malignant disease. This is only to be expected, seeing that the pancreas is so important in the process of digestion.

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FIRST USE OF THE STOMACH TUBE.

Julius Friedenwald says that it is generally believed that two English surgeons—Jukes and Bush—are the inventors of the stomach tube. This claim is based on an article published by Jukes in the *London Medical Repository* of 1822. This is evidently a mistake. That the credit of this discovery is due to our own Dr. Physick there can be no doubt. Physick published his original paper, October, 1812, in the *Eclectic Repertory*, Vol. III., page 111, under the title of "Account of a New Mode of Extracting Poisonous Substances from the Stomach. By Philip S. Physick, M.D., Professor of Surgery in the University of Pennsylvania," which is ten years prior to the appearance of Jukes' article. In this paper Dr. Physick gives an account of his use of the stomach tube in the case of two infants who were poisoned by laudanum. Dr. Friedenwald then carefully reviews the evidence of Physick's priority, and concludes that there can be no doubt that he used the tube as early as 1800, that he recommended it for many years in his lectures to his students, and that in 1812 he published the report of successful results of its use in cases of poisoning, while the work of Jukes first appeared in 1823.

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Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE STRENUOUS LIFE.

By S. T. Erieg, B.A.

There is no place on the face of the earth where so much of the so-called "strenuous life" is seen as in our own glorious country. This spirit of hustle seems to be in the air we breathe.

Foreigners coming to our country fall in with amazing rapidity. The hurry spirit is especially conspicuous to foreigners visiting our shores. An amusing picture is given by Charles Dickens in his Martin Chuzzlewit, of a boarding house in New York City at the time he visited the United States. Martin Chuzzlewit was walking arm in arm with Mr. Jefferson Brick, with Major Pawkins and Colonel Diver in the lead. As the quartet came within the vicinity of their boarding house, they heard a bell ringing violently, and immediately the Major and Colonel left Martin on the street and ran for the boarding house, followed by Mr. Brick. Martin thought the bell was an alarm for fire, and on inquiring, "where is it," of a negro whom he met in the passage, was informed: "In a eatin' room, sah,'Kernel, sah, him keep a seat 'side himself, sah." And then follows a description of how the turkeys, ducks and fowl disappeared down people's throats as if by the aid of their own wings; how dyspeptics bolted their food in wedges and the general rapidity with which everybody dispensed with their food.

The hurry style of eating is still in vogue. People will rush in, swallow their food and rush out again, as if possessed with something. Is there any wonder that our land is filled with doctors, apothecary shops and patent medicines too numerous to mention? This hurry spirit is accountable for a great many deaths and accidents every year. "The report of the Inter-State Commission, on railway accidents in the United States, for the three months ending March 31 last, shows that during that quarter 300 persons were killed and 2,834 injured in train accidents. Other kinds of accidents, including those sustained by employes, while at work, and by passengers in getting on and off cars, make the aggregate casualties 827 killed and 11,481 injured. There were 1,650 collisions and 1,181 derailments, causing $2,491,046 damage to cars, engines and roadways."

What is this talk about race suicide? Why not be more careful with the human beings in existence. Life is too cheap with us; we do not value the life of a human being highly enough. Almost every day there is some railroad accident. We have become so hardened with disaster that we do not see it in its true enormity. "Accidents will happen," but there are by far too many accidents that are due to too much hurry and carelessness. There is too much hurry; we see it all about us.

We take great pride and delight in being called a strenuous people. We are so busy that we have not time to eat properly. People will rush to their places of eating, and in a state of excitement and exhaustion swallow their food whole, and then have the unparalleled audacity to wonder what is the trouble with their stomachs.

A few months ago a woman was killed by running in front of a rapidly running passenger train, because her time was so valuable that she could not wait half a minute for the train to pass by.

There is too great a disposition to act and think afterwards. Everything is hurry, just as if this earth only had a few more revolutions to make. Even the wives have caught the hurry worry spirit, and must be continually doing something all the time. Some cherish the idea that they are not good wives unless they are always scrubbing, cleaning, or doing something. Wives, if you wish to retain the love of your husbands, do not worry and work your beauty and health away and become old before your time. If people would take more time for thinking and action this would be a more harmonious world to live in.

Stop worrying, take time to live. There is nothing gained by this foolish hurrying, but its effects are alarmingly disastrous. By it the pleasures of life go by unnoticed, the home life is neglected, children do not receive the kind attention and care that they should; and above all the body is worn out and becomes old and haggard; premature wrinkles, gray hair and infirmities are all the price of hurry and worry. Some of the fathers have no time to spend at home, but find time to spend their nights and their money in gambling dens and drinking places. God never intended man to hurry and worry life away. God has given many things to enjoy, and the capacity to enjoy them, and did not intend that we should throw them aside and trample them under our feet.

This strenuous life of which we hear so much is not without its evil effects on the nation; it has a decidedly physical weakening effect. A nation to be great must have healthy people for its subjects, and health can only be had by proper care of the body and right living.

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PRINCIPLES OF INFANT FEEDING AS BASED ON THE EVOLUTION OF MAMMALS.

In these days of pap, slops and artificial infant's foods when most city babies are brought up on a rubber nipple it is refreshing to read such sensible words as we find in a recent number of the *St. Louis Clinique:*

1. An infant undergoes three stages of development: (a) preplacental, about three months; (b) placental, about six months; (c) mammary, about ten or twelve months, and should be looked upon as attached to the mother in all three.

2. At the beginning of the mammary stage an infant has only the rudiments of a true stomach.

3. During the period of mammary development the mother first changes the character of the infant's nourishment from colostrum to milk, and then the infant's digestive secretions so changes the character of the milk, as the digestive juices increases in quality and strength, the work of digestion is not thereby lessened, but rather increased, as the stronger the gastric juice becomes, the tougher the milk curds become, owing to the acid combining with the curd.

4. The milk of all animals will produce good tissue. They differ in composition according to the rate of growth of the young animals. Their proteids differ in accordance with the type of digestive tract they are to develop.

5. No known method of procedure will convert cows' milk into human milk. All methods of artificial feeding must have in view the production of food that will adapt itself to the developing digestive tract. All substances, aside from breast milk, are foreign to the infant's digestive tract, and may at times cause disturbance.

6. In artificial infant feeding, certain minimum quantities of digestible proteid fat, carbohydrates and mineral matters are needed. The mean composition of breast milk will serve as a guide to the nutritive requirements of infants.

7. Milk must be the basis of an infant's food, not alone because it contains animal proteid, but because it contains the only available form of proteid, that possesses the function of developing the digestive tract.

8. The proteids of cows' milk, which was intended to develop a calf's stomach to digest grass, must be modified, or adapted to the infant's stomach.

9. This may be done by chemically or mechanically altering the character of the curds, by diluting milk with either alkalies or gruels.

10. When for any reason a sufficient quantity of proteid of cow's milk cannot be given, it must be supplemented by other forms of nucleo-albumins until the normal quantity can be digested. It is a gross error to feed too low proteids of milk simply to overcome indigestion.

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THE HEALTH OF COLLEGE GIRLS.

THE following editorial comments from the *Medical News,* of this city, are entirely apropos, and deserve to be widely circulated:

How much unsound philosophy is rocked out on summer piazzas and made the basis of decision for winter's work! We have tarried here and there for sufficient time to hear the views of many mothers, who, in recounting to the confiding ear the delicate or peculiar constitution of their daughters, have concluded that "Health is so much more precious than intellectual attainments," that the "loving, watchful mother care alone" can keep the fragile anæmic girl in health. And we have rocked sympathetically on other piazzas where the college-bred daughters have arrived glowing and hungry after a twenty-mile row and stripped off their sweaters and recounted their adventures with the enthusiasm of their brothers.

A very well-written study of the "Health of University Girls," by Dr. May E. B. Ritter (*California State Journal of Medicine,* July), places the cause of ill-health in such girls as do break down at college where it justly belongs, in the poor hygiene permitted by their mothers in their early school days, and in the lack of preventive medicine taught by physicians in the homes where they attend children.

Dr. Ritter states emphatically that college life, far from injuring the girl student, is in most cases beneficial to her health. As medical examiner in the University of California for thirteen years, she found that all but about 23 per cent. of girls entering college had some form of ill-health due to unhygienic living, or the sequelæ of infectious disease.

Headaches, constipation, indigestion, anæmia, or menstrual disorders were present singly or combined in three-fourths of the students on entrance; as a result of hasty breakfasts, cold lunches, lack of outdoor exercise, inadequate sleep, and bad habits of posture in early girlhood. In many cases improved health and remarkable gain in weight was noticed, especially among the anæmic girls, as soon as their life included proper food, regular diet and plenty of sleep, and this was in addition to the nervous strain of study.

The question of posture in childhood has, according to Dr. Ritter's observation and reasoning, much to do with menstrual difficulties of girlhood, and the semi-invalidism of many women; and she reduces the "stand up straight" dictum to its elements, showing that in our biological growth from the anteroposterior position to the erect, the weak point is the knees, and that to make up for poorly developed leg-muscles and good knee postures, the young girl seeks to rest herself by standing with one hip thrown out, or the whole abdomen thrust forward. Naturally the internal organs that before the days when we had "diseases, accomplishments and sins," were swung easily between four feet, grow crooked, when they are held in a distorted vertical frame.

But these questions are not discussed on piazzas—rather the "inability of my daughter to take anything but a cup of coffee for breakfast," and the "constitutional delicacy of my niece, inherited from her poor dear mother." We agree with Dr. Ritter that it behooves physicians, after they have rested from the exciting chase of discovery down the lines of specialism, to devote themselves seriously to the art of preventive medicine.

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GASTROPTOSIS, OR PROLAPSE OF THE STOMACH.

The causes, consequences and rational treatment of this distressing condition, which exists in a large number of "dyspeptic" cases in which it is unsuspected, are being more thoroughly studied than ever before in the history of medicine.

At a recent medical conclave Drs. A. P. Francine and J. D. Steele, of Philadelphia, reported their results from the treatment of this condition. They have endeavored to determine three questions: (1) The proportion of cases in which gastroptosis and stomach symptoms are both present that the symptoms are due to the displacement; (2) the effect of mechanical treatment; (3) the prognosis. Twenty-eight cases have been observed one year or longer. In 16 there was diminution of HCl, in 2 there was dilatation of the stomach. None had chronic gastritis. The dominating condition seemed to be gastric neurasthenia. Sixteen cases improved greatly under mechanical support and diet. It is believed that the downward displacement may of itself be responsible for gastric symptoms. About one-fifth of the cases belong to this class. The remainder are due to gastric motor insufficiency, neurasthenia, constipation, congestion, etc. The prognosis is favorable in the first class of cases.

Dr. Theodore Diller, of Pittsburg, in the discussion cited two cases of neurasthenia that were greatly benefited by treatment of the stomach condition or gastroptosis. Dr. S. Solis Cohen took exception to the statements that made neurasthenia a result of gastroptosis or movable kidney. Neurasthenia is a distinct disease and is not cured by operations on the stomach, etc. The best that can be hoped from a bandage in gastroptosis is to give relief and yet this may make the patient averse to operation. In marked degrees of prolapse operation is necessary for good correction. Dr. Ernest Laplace said that maltruition caused sagging of the viscera and the entire condition was put under the name of neurasthenia. The important point is not what to call the condition, but that patients come for relief. Medical measures and support alone do not answer. Surgery is able to remove the cause of excerbation and allow medicines to act. Dr. Steele said thtat gastroptosis was a complication rather than a symptom of neurasthenia. Mechanical support seems to be an absolute necessity for treatment. Cure is effected only by removing all the links in the cause. He is not prepared to say that surgery is not needed, but a certain proportion get well without it.

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DO WE EAT TOO MUCH?

Sheffield Scientific School to Make a Test of Twenty Regular Army Soldiers.

On September 26 a squad of volunteers from the United States Army at Washington arrived in New Haven, where they are to subject themselves to experiments by Prof. Russell H. Chittenden, director of the Sheffield Scientific School, who will try to demonstrate that the American people eat too much. In discussing the plan to-night Prof. Chittenden said:

"Through the courtesy of Secretary Root and Surgeon-General O'Reilly of the army, the War Department will co-operate with the Sheffield laboratory in a physiological study of the minimum amount of proteid and albuminous food required for the maintenance of health and strength under ordinary conditions of life. In carrying out this purpose twenty men have been detailed from the hospital corps of the army and will be in New Haven on Monday under the charge of Lieut. Wallace Dewitt, Assistant Surgeon in the United States Army, and three non-commissioned officers.

"The Scientific School has fitted up a house on Vanderbilt Square, Temple and Wall streets, where the men will be housed and cared for during the period of the experiments—doubtless for about nine months.

"In this study there are no special theories involved and no special system of dietetics, but the object especially aimed at is to ascertain experimentally whether physiological economy in diet cannot be practised with distinct betterment to the body and without loss of strength and vigor.

"There is apparently no question that people ordinarily consume much more food than there is any real necessity for, and that this excess of food is in the long run detrimental to health and defeats the very objects aimed at. It is with a view to gather as many facts as possible on this subject that the study is undertaken.

"This investigation is merely a continuation on a large scale of earlier observations made in the Sheffield Scientific School last year and bears directly upon the question of a possible physiological economy in nutrition."

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HUMANITY AND DIET.

The following, from *The Animals' Friend,* states the argument from a vegetarian viewpoint:

Many persons are shocked at the cruelties involved in the fattening and slaughtering of cattle, pigs and poultry for the production of meat, and would like to be vegetarians—at any rate in as far as abstinence from butchers' meat is concerned—but they do not know how to begin. They have grown up in the belief that meat is necessary to health, and foresee great difficulties where in fact none exist. The chief difficulty in becoming a vegetarian is in reality one of mind rather than body. The first essential is to have the wish. If there is a real wish all supposed obstacles can easily be overcome, while on the other hand, if there is only a passing fancy a score of reasons for giving up the experiment will soon be found.

Let us assume that some of our readers really wish to live without meat, and are willing to make some slight sacrifice in order to do so; the second important part is that they should have the belief that they can do so. In this, as in other matters, those who have no doubt have also no difficulty, while those who are timid and nervous see and feel difficulties at every turn and never succeed.

A great step is gained if you can only realize that in giving up meat you are not doing anything at all extraordinary. Most of us must have known cases of cats and dogs, animals purely carnivorous by nature, who have learned to live in perfect health on a diet with no meat in it. How much more then should we, who have never been wholly carnivorous, be able to live healthfully without meat. The greatest meat-eater is after all already more than half a vegetarian. It is not really a question of changing the diet, as in the case of a carnivorous creature, but only of eating more of one recognized kind of food and less of another.

Many millions of people—some say more than half the population of the world—are at the present time living without meat in their diet, no less healthfully and happily than others. Until a few years ago, both in England and on the Continent, the classes who have done the hard work for the community have lived almost without flesh food except perhaps once a week at the Sunday dinner. All the animals which supply mankind with sustained power, the elephant, camel, reindeer, ox and horse are purely vegetarians. Some of the greatest intellects the world has seen have, at any rate for part of their lives, been vegetarians, as Plato, Newton, Shelley. The victims of the sweater's den, with sixteen hours' work a day and not much more than half that number of shillings a week, can afford no meat, but carry on their grinding work for years before they succumb. In face of these facts it is simply ridiculous to assert that our bodies cannot be nourished without the sacrifice of animal life. Looking at the workers of the world we might almost say that the necessity for animal food and the amount consumed is in direct proportion—not to the work done but to the leisure and idleness of those who suffer from this supposed necessity. When we are told, as we often are, that "it may suit some people, but I am sure it would not suit me," we know that unfortunately this is quite true; but it is not the body that presents any difficulty, but the mind that is at fault—often, it is to be feared, hopelessly so.

If, then, the reader really wishes to abstain from meat and also realizes that he can perfectly well do so if he likes, a very few practical hints will suffice to start him on his way. If his faith is strong he will merely give up the meat and eat the other things.

A good deal of nonsense is talked about people being unable to change after they have attained middle age. There might be truth in this in the case of purely carnivorous animals, but with creatures frugivorous by nature, and always more or less vegetarian by habit, the change can be made at any time if the mind is in it.

That some people cannot digest or assimilate some vegetarian foods is obvious, but if that is an argument against the bloodless test, then the fact that some meat eaters can take mutton but cannot digest beef or pork is also an argument against all meat eating. There is ample variety in the vegetable world to suit all constitutions and all well-trained palates.

It may be well to bear in mind—

1. That most people eat more than is necessary for or conducive to health and strength.

2. That in their fear lest they should starve, many would-be vegetarians make themselves ill by taking too much of the more stimulating foods, such as peas, beans, lentils, nuts and grains.

3. That fruits are not merely adjuncts to substantial food but are themselves substantial articles of diet. It is quite possible to sustain healthy life solely on some fruits.

4. That the "craving" for meat, like the craving for drink, is not an indication of the necessity for it. It is a morbid condition of mind and body, mainly the former, and will pass off under healthier conditions if the will is exercised as it should be in the matter.

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THE PHYSIOLOGY OF SHAKESPEARE.

In the play of "Coriolanus" and in the passage where the stomach is described as being put upon its defence, the following passage occurs:

True is it, my incorporate friends, quoth he,
That I receive the general food at first,
Which you do live upon; and fit it is,
Because I am the storehouse and the shop
Of the whole body; but if you do remember,
I send it through the rivers of your blood,
Even to the court, the heart, to the seat o' the brain,
And through the cranks and offices of man;
The strongest nerves and small inferior veins
From me receive that natural competency
Whereby they live.

Considering the date at which it was written and the curious conceptions in vogue at the time of most life processes, this passage has always seemed to us noteworthy. But for the ascription to the stomach of a virtue which might more properly be claimed by the glycogen-forming liver, it might almost have been written yesterday by a lecturer on physiology with a turn for metrical expression. In quoting it in a discussion on the "Medical Knowledge of Shakesepeare" in the *Westminster Review,* Dr. John Knott reads "veins of blood," but "rivers of your blood" is the reading in all the texts with which we are acquainted, and also preferable, because no confusion between the functions of veins and arteries is thereby introduced. Another passage, quoted by Dr.

Knott is a reference to the callus thrown out by a broken bone, and the thickening and apparent strengthening of the latter after fracture.

> Our peace will, like a broken limb united,
> Grow stronger for the breaking.

There are also a good many expressions and sentences to be discovered by the medical Shakespearean student which seem to indicate that Shakespeare had at least some premonition of Harvey's discovery of the circulation of the blood. Instances of them, quoted by Dr. Knott, occur in "Julius Cæsar," Act 2, Scene 1; "Hamlet," Act 1, Scene 5; "Measure for Measure," Act 2, Scene 4; and "Henry IV.," Part 2, Act 4, Scene 3. In this latter play, it is to be noted, there is also a very accurate description of the typical appearances of age. The "dry hand," the "yellow cheek," "decreasing leg, increasing belly," "broken voice and short wind." In the early part of "Henry V." there is also a good clinical picture of what commonly occurs in the last hours of a fatal fever, the pinched features, circulation gradually failing at the extremities, plucking at the bed clothes and visionary smile.

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SOME RECIPES.

NUT AND FRUIT CRACKERS.

One pound of whole wheat flour, one-half cup of almond butter, one pound of seeded and chopped raisins. Rub the almond butter into the flour; when thoroughly mixed add sufficient water, about one cup, to just moisten. The dough must be very hard. Knead for a few moments, and roll out in a very thin sheet; sprinkle over one-half of this sheet the chopped raisins, fold over the other half, and, with a rolling pin, roll the two carefully together. Cut into crackers about two inches wide and three inches long; place in a baking pan and bake in a moderate oven until brown and crisp, about twenty minutes.

NUT ROLLS.

One quart of carefully cooked hominy grits, one pint of nut butter, one-half pint of stale bread crumbs or grated zwieback, one tablespoonful of chopped parsley, one-half teaspoonful of celery seed or a half cup of chopped celery, three hard boiled eggs, two rounding teaspoonfuls of salt, one salt spoonful of pepper. Cook the hominy in water until perfectly tender. Put it into a bowl and add all the other ingredients, the eggs being chopped fine. Form into a large roll, or shape it in the form of a chicken, or a fish, or in good-sized balls. If made in the form of fish, or chicken, or a roll, place them in a baking pan, add a half cupful of nut butter diluted with a half pint of warm water; roast one hour, basting frequently. When done, dish and garnish with parsley and lemons cut into quarters. Rub together two tablespoonfuls of pine nut butter and two tablespoonfuls of flour. Add this to the mixture in which the roll was cooked, then add a half pint of boiling water and stir until smooth and the consistency of cream. Add the juice of a lemon, a half teaspoonful of salt, and a dash of pepper; strain, and send to the table in a boat.

NUT AND FRUIT CHEESE.

This mixture makes one of the nicest of all sandwich fillings, and is almost a meal in itself. One-half pound of figs, one-half pound of raisins, one half pound of dates, one-quarter pound of almonds, one-half pound of pine nuts, one-quarter pound of Brazil nuts, one-half pound of pecan nuts. Wash the figs, stone the dates and the raisins—seedless raisins may be used, and are really just as good. Mix the nuts. Put through a meat chopper, first a little fruit, then a few nuts, and so continue until all are chopped and mixed. Press the mixture down into either baking powder boxes or small, square tins, and stand it aside. When wanted for use, loosen the mixture from the sides of the boxes with a thin knife blade and turn it out on a board. Cut into very thin slices and serve in the place of meat. For sandwiches put a thin slice between two layers of bread and butter. These nut foods are excellent fillings for school sandwiches.—*Mrs. Rorer's New Cook Book.*

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NECESSARY NUTRIMENT.

FROM the *N. Y. Tribune Weekly Review* we quote the following interesting editorial:

"Although the practice of eating considerably antedates civilization, and since its first adoption has been widely observed, a good deal remains to be learned regarding it. Several different investigations have recently been in progress or are now proposed in relation to some phase of the food question. Professor Atwater has been studying the effect of alcohol on the human system, Dr. Wiley has been testing various agents employed as preservatives, Professor Jaffa, of the University of California, has been looking into the merits of a diet of fruit and nuts, and Professor Chittenden is about to initiate a fresh determination of the minimum amount of albuminous food required in health. The experiments last mentioned are really an outgrowth of some earlier observations by the New Haven expert, but they will be carried out on a much larger scale. In *The Popular Science Monthly* last June Professor Chittenden expressed the opinion that the estimates of some other authorities concerning the quantity of proteids really needed were too great. When he has made the tests which are now contemplated with twenty United States soldiers, and has extended them over a period of nine months, he will have data in which he can place greater confidence.

"Researches like those of Professors Jaffa and Chittenden have a great economic value. With the vast majority of mankind the cost of living is a matter of pressing importance. Taste and habit largely dictate the kind and quantity of food that most people eat, and where there is a good, healthy appetite there is a chance of a heartier indulgence than is either wise or necessary. Nevertheless, in view of the high prices of meat, it is a philanthropic movement which directs attention to the nourishment to be found in cereals, fruits and nuts. At present, according to Professor Jaffa, the protein of a beefsteak is less expensive than that of all nuts except the peanut, but the latter is a much more economical source than any meat. He estimates the cost of a given quantity in a porterhouse steak as four times that of the same amount derived from peanuts.

"The object of the New Haven experiments is to ascertain, not how great a percentage of carbohydrates and protein each common article of food contains, but how great a total of those two essentials is required to insure health. If no great number of individuals govern themselves accordingly, the information will nevertheless be of practical value to physicians and to military officials who are charged with the duty of prescribing the character of rations for an army or navy. Where the question of transportation must be considered, it becomes desirable to secure the largest amount of nourishment with the least weight. Sociologists, too, will thus be enabled to judge whether the working classes are making judicious purchases of food, and perhaps to furnish some help in determining reasonable rates of pay.

"The inquiry just instituted at the Sheffield Scientific School relates to the requirements of men who live an outdoor life and whose activities are exclusively physical. Still, the results obtained should be applicable to a great many persons besides soldiers. They should fit the agricultural classes fairly well, and perhaps the operatives in factories. For brain workers the quantity and kind of food necessary to the highest efficiency would doubtless be different. Unless they take a great deal of exercise, they would require a smaller amount than laborers. Besides, professional men and women rarely take their heartiest meals at the time of day most favored by others. Some day, perhaps, Professor Chittenden will organize a fresh investigation for their particular benefit."

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THE DRAWBACKS OF STERILIZING MILK.

THE use of sterilized milk for the purpose of artificial infant-feeding is meeting with condemnation on all sides. Once looked upon as an epoch-making innovation, it is now abandoned by the majority of leading authorities.

The author has drawn his conclusions from a study of 175 analyses of sterilized milk. It was found that milk, when subjected to high temperatures, gradually loses its normal odor and taste, becoming insipid. The fat-globules undergo certain changes of a quantitative character; the sugar and the albuminous elements are likewise altered. These changes are the results of high temperature. The milk thus altered in composition becomes indigestible or else loses its vital properties.

Prolonged employment of sterilized milk as an infant food lowers or completely deranges metabolism; an extra strain is thrown on the digestive organs, paving the way for a host of diseases; the systemic nutrition is inadequate, and the result is frequently constitutional disease.

Finally, the much-vaunted germicidal value of sterilization is a complete illusion. This result can only be obtained by temperatures which render the milk useless for feeding. Cleanliness in handling and preserving the milk are far more valuable.—*Arch. of Ped.*

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THE MILK QUESTION AND MORTALITY AMONGST CHILDREN HERE AND IN GERMANY.

EMILIE BERLINGER, comparing the mortality amongst children in Washington and Hanover, finds that the figures for the latter are 60 per cent. higher than the former. He considers the difference largely due to the quality of the milk in the two cities. In Hanover they have practically neither milk laws nor inspection of stables. The only punishable offense is the addition of water. In Washington they have pretty good, though not perfect, milk laws, and inspection is all that can be expected under the circumstances. The statistics of infant mortality in Washington and Hanover would seem to offer convincing proof that pure milk is necessary for the preservation of the health of young children.—*Med. Rec.*

* *

VINDICATING THE GIRLS.

MR. W. L. ALDEN, of London, England, in his weekly letter to the *N. Y. Times,* makes the following timely and spirited defense of the English girls, who are charged with having become "angular and flat chested" because of their indulgence in athletics:

"Mr. Marriott-Watson, the novelist, has been writing concerning the effect of athletic sports on women, and he takes a very gloomy view of the subject. He says that athletics have changed the English girl into a tall, flat-chested, angular person, and he evidently believes what he says. It is a fact that the latest pattern of English girl is much taller than the former model, but that she is flat chested I very much doubt. Of course this is a matter as to which a man cannot speak with authority, but I can truly say that among the hosts of English girls whom I daily see playing tennis on the Common, where I take my daily walk, I have seen very few that present the appearance of being flat chested. Perhaps Mr. Marriott-Watson has better means of observation, but I doubt it. Perhaps the full-bosomed, splendidly built girls who play tennis and ride the bicycle, and shine in golf and hockey are deceiving us, and what we mistake for the gifts of nature are simply the fictions of art. But for one, I don't believe it. The English girl may not be the Du Maurier girl, as Mr. Marriott-Watson asserts that she is not, but she is a far better built girl than the willowy creation of

Du Maurier. Also Mr. Marriott-Watson says that the Gibson girl, like the Du Maurier girl, does not exist. Doesn't she? I am sorry for Mr. Marriott-Watson's lack of opportunities for investigating the Gibson girl. She may not be the predominant girl in America, but to say that she does not exist is absurd. I saw her myself the other day at Charing Cross Station, and if Mr. Marriott-Watson had seen her he would have revised his opinion that the Gibson girl does not exist and that athletics are making the English girl flat chested."

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BUTTERMILK.

Buttermilk as a remedial agent cannot be praised too highly. The lactic acid, the sour of the buttermilk, attacks and dissolves every sort of earthy deposit in the blood vessels. Thus it keeps the veins and arteries so supple and free running there can be no clogging up; hence no deposit of irritating calcareous matter around the joints, nor of poisonous waste in the muscles. It is the stiffening and narrowing of the blood vessels which bring on senile decay. Buttermilk is likely to postpone it ten or twenty years if freely drank. A quart a day should be the minimum, the maximum according to taste and opportunity. Inasmuch as gouty difficulties arise from sluggish excretion, buttermilk is a blessing to all gouty subjects. It gently stimulates all the excretories—liver, skin and kidneys. It also tones the stomach and furnishes it the material from which to make rich, red, healthy blood. If troubled with gout avoid meat, sweets, pastry, wines, spices, hot rolls, bread of all sorts, and everything belonging to the tribe of ferments. Eggs, game, fresh fruit, vegetables, especially salads, may be eaten with impunity. If any one has a creaky joint or a swollen and aching one, he should drink all the buttermilk he can relish whenever and wherever he can, but it should be fresh churned and wholesome.—*Exchange.*

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TENT CURE IN A BACK YARD.

That it is possible for every man to have his own health resort in his back yard and by living outdoors to fortify his system against pulmonary disease is being demonstrated by J. A. Baumgardner, a letter carrier of York, Pa.

A year ago he found himself failing in health and was advised by his physician to seek a change of climate in one of the Western or Southern States. Fond of outdoor life, and having read of how consumptives had been cured by sleeping and living out of doors, he decided to reject the physician's advice and establish his own health resort in the back yard of his home.

He erected a small wall tent in the yard, built a bunk in it and furnished it with a table, a chair, a stove for cooking and cooking utensils. This has been his home for more than a year. In the severest winter weather, as well as in summer, he sleeps and lives in his tent.

When the rigors of winter drive stronger men indoors, Baumgardner persists in his outdoor life, and it is a common experience for him to awaken on a winter morning to find the flaps of his tent sealed by coatings of ice so that they have to be broken apart before he can get out. Winter and summer he takes a sponge bath in cold water every morning. His health has been completely restored.—*N. Y. Sun.*

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JEWELLED TREE FOUND.

The Chinese Imperial Treasure in the Boston Art Museum.

One of the most inexplicable mysteries connected with the Forbidden City of Peking has come to light here with the strange appearance in the Boston Art Museum of the famous sacred jewelled tree belonging to the imperial family of China.

For more than two centuries this treasure, made of native Chinese precious stones, standing two and a half feet high and radiating a brilliant mass of colors, had been closely guarded day and night, few persons knowing of its existence or where it was kept. Then its disappearance several years ago caused a furor among Chinese officials, who searched the empire and then the world for it without success.

Recently the tree appeared suddenly in the Boston Art Museum, arriving there as mysteriously as it had disappeared from China. An effort has been made to have it returned to China, but as it was stolen years before the Boxer trouble it is lost to the Chinese forever.

* *

DANGEROUS WALL PAPER.

In connection with the selection of wall papers, it is as well to bear in mind the fact that although the unwholesome exhalations of papered walls mostly emanate from such papers as have a blue or green ground; they also occur where the blue or green constitutes the largest part of the pattern, the dye stuff being chiefly composed of blue or green ultramarine. The latter is entirely harmless, but has the property of becoming decomposed by slightly sour liquids and diffusing a most disagreeable odor—a development of sulphuretted hydrogen during the slow process of decomposition. The paste used for fixing wall paper is frequently of a somewhat sour or readily souring character, and quickly penetrates the paper, causing the above-mentioned effect—a very slight degree of fermentation sufficing to bring about the offensive result. And this appears, too, the more markedly if the walls are slightly damp and already covered with several layers of paper, so that the lime plastering cannot have a neutralizing tendency on the lactic acid in the paste, etc. In such cases, therefore, where it is necessary to affix wall paper on a ground of old paper, as well as in all cases where green or blue is used, it is recommended to employ only such adhesive agents as do not sour or, if inclined to decompose, contain slight quantities of lime, milk, or soda solution before use.

* *

FIRST AID IN BITES OF RABID ANIMALS.

The *India Medical Gazette,* which comes to us from a region where rabies is prevalent, is to be credited with these pertinent suggestions, which in effect upset and explode some snake-bitten traditions:

In the recently issued report of the Director of the Pasteur Institute for the year ending August 8, 1902 (but printed and issued in March, 1903) we find a useful note on first aid treatment for bites of rabid animals—which, if not new to medical men, is worth republishing for the benefit of the public.

The first duty is cauterization of the wound at the earliest possible moment. Major Semple, R.A.M.C., the Director, recommends pure carbolic acid as the best and least painful application. It should be well swabbed into the wound, which should then be washed out with water to prevent too much destruction of the tissues; crude phenyle answers much the same purpose as carbolic acid and is available in many houses in India. Other caustics, potash, caustic soda, silver nitrate are fairly good, but they cause considerable pain, and nitric acid is not only very painful, but burns deeply and leaves ugly scars.

The best that can be said for any form of cauterization is that, if thoroughly carried out, within a few minutes of the infliction of the bite it "will prevent the subsequent onset of hydrophobia in many cases, *but not in all.*" Cauterization can only destroy the virus *in situ.* Major Semple thus sums up: it is questionable if cauterization does any good after eight or ten hours, it is probable that it does not do much good after three or four hours, and it certainly does no good after 24 hours. The one rule is, "the sooner the better." It is a mistake to ligature above the wound, and in the Director's opinion it is also a mistake to suck the wounds or excise them. As the virus affects the nerves, a ligature to control the blood vessels can do but little good. As to sucking the wound it is dangerous to any one with decaying teeth or even cracked lips, and as for excision there is the danger of the virus infecting the larger wound made by the excision.

THERE IS NO MONOPOLY OF HONOR.

Equitable distribution of material gains may be difficult, but the acquisition of moral qualities is free to all who will partake of them. Unlike the treasuries of commerce, the treasures of wisdom are multiplied by being divided. A man may be poor in purse, but rich in honor. A tremendous gain will be made in the cause of humanity when all men can be trusted on their honor; when their word of honor can be accepted without risk of loss, and property responsibility will no longer be required.

The word of honor of an individual should be the strongest bond he can give. The word of honor of an organization should be as much stronger than that of an individual as it has members. Every member should give additional strength to the honor of the organization with which he is affiliated. There is no necessary reason why the word of honor of trades unions should not be as good as the bond of a union of capitalists. They promise only what they can do. They should keep their promise.

DISEASE OF METALS.

Certain metallurgists in Germany have come to the conclusion that metals are capable of being infected with diseases. A leading scientist (Professor Heyn) has found that in the injury done to copper from overheating the metal is poisoned with what he calls copper protoxid, a disorder which causes sickness and structural weakness. Steel that has been poisoned by hydrogen is deteriorated until it becomes almost as brittle as glass. Another scientist has discovered a certain kind of tin pest which inhabits roofs. He found also that when the diseased metal was brought into contact with healthy tin the latter soon became infected and was finally destroyed.—*Harper's Weekly.*

BELIEVE THE DOCTORS AND——

Drink water and get typhoid. Drink milk and get tuberculosis. Drink whiskey and get the jimjams. Eat soup and get Bright's disease. Eat meat and encourage apoplexy. Eat oysters and acquire toxemia. Eat vegetables and weaken the system. Eat dessert and take to paresis. Smoke cigarettes and die early. Smoke cigars and get catarrh. Drink coffee and obtain nervous prostration. Drink wine and get the gout. In order to be entirely healthy one must eat nothing, drink nothing, smoke nothing, and even before breathing one should see that the air is properly sterilized.—*Southwestern World.*

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, NOVEMBER, 1903

THE HYDRATION OF FOOD.

SOME dietetic writers dwell on the necessity of adequate hydration of food as a preliminary to its complete and prompt digestion. Nor do they overstate the argument. But they fall into the error of excusing the inordinate or excessive imbibition of liquids during the act of the ingestion of foods. It is one thing to accomplish aqueous dilution—this being the result in case of copious drinking with meals—and quite another to ensure perfect and physiologic hydration by the method of nature.

A little reflection will convince any physiologist that normal hydration of food is accomplished, not directly by mere dilution with water or other fluid as it passes into the stomach, but by the exudation of normally diluted gastric secretions. In case of persons who have acquired abstemious habits in the matter of water drinking, the gastric secretions are either deficient or abnormally concentrated; they lack fluidity. In these cases adequate hydration cannot be accomplished. The chronic repetition of this habit or process induces a disorder of the stomach that has various manifestations and receives various names. Oftener than anything else, perhaps, it is called hyperchlorhydria. Sometimes it is called chronic gastritis, or gastric catarrh of a low type.

In plain English, and with all due deference to the rising race of "test-meal" scientists, nine-tenths of these cases would be effectually cleared up by free water drinking—not *at* meals, but before and between meals. In other words, the stomach will take care of itself if amply supplied with proper materials and reasonable facilities. It will even cope with a considerable degree of adverse conditions when not too long or too extensively cheated of these materials and facilities. Too abominably abused or too long abused, patience ceases to be a virtue with stomachs as with human nature in general.

Of all the dietetic shortcomings insufficient water-drinking is one of the most prominent and one of the easiest remedied. Furthermore, its results are not limited to acute and chronic indigestion, but compass a host of constitutional disturbances and diseases, rheumatism being one of the most prominent, painful and universal.

SOME SCIENTIFIC MISNOMERS.

THE dynamo does not generate electricity. It taps an inexhaustible supply, diverts an inconsiderable fragment from the great storehouse of nature, and is learning to play with it, to utilize it for business purposes, for pleasure and convenience, and tentatively as well as hesitatingly and imperfectly, for the relief of suffering and the eradication of disease. But the name Electricity is neither appropriate nor adequate, since it comes from the Latin root meaning *amber,* that being the substance from which, by friction, it was first discovered that electrical phenomenon could be made manifest. In hunting for a better word, various suggestions have been made, but no satisfactory substitute has yet been accepted, perhaps none ever will be, since the language is full of names of objects, elements or forces which are neither suggestive nor appropriate, and the persistency with which the wrong name is retained has become a matter of history.

Biogen and *Vitogen,* with other similar names, have been suggested; but they are scarcely less faulty, and have not as yet received even a respectful consideration. They are inappropriate for the reason that they both suggest an originator of life or of vital force, whereas there is no process of creation involved, perhaps because none is possible. Life is, has been, and doubtless will be. More than this we have not yet learned and may never learn.

Living Energy comes nearer to a description; but no philosopher, metaphysician or scientist has discovered its source, magnitude, power, limitations or destiny.

This force exists, it persists, it is immeasurable and it is indestructible.

* *

RADIO-ACTIVITY AND RADIO-THERAPY.

The scientific world is becoming much excited over the subject of radio-activity, and medical circles are speculating as to the possibilities of radio-therapy.

The fairly contradictory and almost miraculous properties of radium are setting at naught some if our established chemical axioms, and apparently annulling long recognized physical "laws." We quote the word, since it begins to savor of folly to any longer revert to any physical fact as being a fully established law. This newly studied element begins by ignoring the law of the universal tendency of temperature to establish an equilibrium. As we were taught, and still teach physics, ice and a heated body, when brought into close proximity, set up a steady interchange of conditions until both are of the same temperature. Radium does nothing of the kind. It gives off both heat and light without any apparent diminution of its own supply or loss of substance, and also without absorbing or appropriating anything from surrounding media in return.

Some of the later experimenters are, however, discovering that other bodies than radium possess a similar property though in scarcely comparable degree.

The study of this new manifestation of matter is in its infancy, but all the data thus far to hand lead us to infer that it is but another expression of electric energy. We begin to realize that this force is little or not at all hampered by the "laws" of matter, or the "correlation of the physical forces," under which physicists have so long and so confidently taken refuge.

* *

PROTEST AGAINST CALLING MEN OF SIXTY "AGED."

The *New York Sun* thus protests against the prevailing injustice done to the great army of youths in the world:

Our neighbor, the *Times,* makes a just protest against an unfortunate habit of reporters and makers of newspaper "headlines." These gentlemen persist in calling folks of 60 and thereabout "aged." The habit is spread all over the United States. We have rebuked it a hundred and a hundred times. For the instruction and reproof of the erring, we have culled from the long roll of living centenarians many a candidate for the bicentenarian class. Thus have we sought to instil a sense of proportion and a knowledge of the proper divisions of human life.

If the epithet "aged" is still misapplied scandalously, the fault is not wholly due to the youth and inexperience of reporters and "deskmen." Strange as it seems to the newspaper kindergartener with the dimpled chin, reporters are extant who have grandchildren, and we have known "copy readers" of patriarchal beard. Yet these persons, who should be the first to resent an improper use of this abused and foolish adjective "aged," will themselves misuse it shamefully. The confounded impenetrability of matter is their excuse. A "headline" can hold only so many letters. A man of 60 may be "middle-aged" or "young" in the estimation of the "copy reader," but the first epithet is much too long and the second is often too long by a letter. The real or supposed necessities of type have imposed themselves. The reporter, however ingenuous in his budding days, naturally complies with the style of the fortunate man who has the happiness of reading his compositions. Thus millions of tender juvenals are classified as "aged" to their amusement or annoyance.

This is the kindest defense that can be made of a thing essentially indefensible. There is a darker side to the matter. The study of these reporters, like that of too many other characters of this age of novels, is but little on the Bible. If they would learn the fifth chapter of Genesis by heart, they would get a correct notion of age. Here are a few men who, in their last years, might without offense have been called "aged": Adam, 930; Seth, 912; Enos, 905; Cainan, 910; Jared, 962; Methuselah, 969.

We exclude middle-aged persons like Mahalaleel, who was cut off in his 896th year, and adolescents like Lamech, who lasted only 777 years. Indeed, Methuselah is the only man in the list to whom we should grant a patent to be called "aged," but the standard must not be put too high at first.

Viability increases every day. In a few hundred years no life insurance company will dare to sell an annuity. It is the more unbecoming to speak of striplings of 60 and 70 as "aged." For the convenience of reporters and others we give a provisional scheme of classification: Infants, as at present, birth to 21; boy, youth, adolescent, 21 to 71; middle-aged, 71 until further notice.

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POSITIVE AND NEGATIVE BEATITUDE.

THE *Surgical Clinic* is guilty of the following ironical fling at a royal inventor:

It may interest the country doctor to learn that Count Mattei—the "Italian Noble" who invented the "Mattei Electro-Homeopathic Remedies" now being exploited in this country by the Salvation Army states in his "works" that "the polarity of man means that one portion of the human body is positive and the other negative." As a result, by applying a positive remedy to a negative spot and *vice versa* "a negative or neutral state" is induced and pain and disease vanish.

As an example: the positive hand of the angry mother applied to the negative *glutei* of her offspring will—but hold! that doesn't seem to work out as Count Mattei would have it. If we do not forget there is by no means a *neutral* state as a result of the contact?

According to Mattei "the right half of the face is negative and the left positive." *Now* we know what is the matter when the wrong man kisses a girl. His negative side of the mouth touches her positive—or was it the negative?—while, when the right man osculates the two positive sides coapt and as a result— Oh, pshaw! what's the use of trying to think about the results. Every one knows all about them.

Anyway, do not forget that (according to Mattei) "the outer sides of the arms and legs are positive while the inner are negative," and also remember that the bringing of positive and negative together disperses pain, trouble and unrest.

Surely the name of Mattei should be called "Blessed." At the same time it is *most* essential that one should remember which side is which.

* * *

CHILDREN AND THEIR TEETH.

ALICE M. STEEVES, D.D.S., of Boston, thus tersely and aptly summarizes on this important subject:

"Cleanliness is next to godliness." "A thing of beauty is a joy forever." Two sayings especially applicable to the oral cleanliness of children. No matter how sweet mannered and prettily dressed a child of ten or fifteen years of age may be, if the smile reveals a row of badly kept, uneven teeth, with cavities filled with the products of decomposition or laden, perhaps, with the germs of tuberculosis, diphtheria and scarlet fever (three of the contagious diseases most fatal to the youth of our land) waiting for the time when the little patient may be reduced in bodily vigor, to enable them to run their life course in a well-developed case of the disease.

It is a well proven fact that tuberculosis of the glands of the neck is often due to the neglect of the lower molar teeth. The cavities harbor the germs which lose no time in finding their way down the undeveloped root canals to the glands of the neck. Therefore, how many almost irreparable evils result from a little neglect, a deformed face, impaired digestion with all the consequent nervous accompaniments, a system infected with that dread disease, tuberculosis. And if the child recovers its health it is only after much suffering, a surgical operation and a scar on the side of the neck as a souvenir. And what can we do to teach mothers the serious results of the crowded conditions of the teeth found in so many instances? It causes a narrowing of the face, a contracting of the nasal passages, which causes mouth breathing, these conditions aid catarrh and enlarged tonsils. All these conditions are often present in one child, and part of them in ninety per cent. of all the children in our country.

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THE State Board of Health has declared war on rats all over the State, and will endeavor to interest local authorities in the fight. Secretary Foster of the State Board said that rats were a prolific cause of the spread of contagious diseases. They crawled through the slime of the sewers and gutters and became impregnated with microbes, which they scattered over carpets and floors, also over vegetables and other food which they afterward crawled over, and in consequence their death had been decreed by the State Board.

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THE WELL UNDER THE PORCH.

WE clip the following very suggestive item from the *Monthly Health Bulletin* of the Indiana State Board of Health:

Mrs. Hirshbrunner, of Rockville, thought she had reason to suspect that the water from her well was polluted. She therefore sent a sample to this office for analysis, and made the following statements:

"The well is situated under the porch; it is 35 feet deep, dug and lined with brick. The ground slopes from the well south to a piece of low ground. This low ground is drained by two tile ditches. The waste water from the well and water from the house is drained into one of these ditches, which leads to a small hole 150 yards from the house. The vault is 25 yards from the well and is 4 feet deep. The above described ditches are between the well and the vault. There is no stable closer than 100 yards. The well has 25 feet of water."

Our analysis shows that this water is rich in organic matter of animal origin, and also that it contains intestinal bacteria. It, therefore is polluted and unfit for use. Mrs. Hirshbrunner did not give her reasons for suspecting this water. The point of the matter is, a dug well is pretty likely to be polluted, and if under a porch it almost certainly will be.

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Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

WHAT MEDICAL MEN THINK.

A PAPER on "Intemperance and Life Insurance" was read recently by Dr. C. H. Wahrer, at a meeting of the Tri-State Medical Society, held in Chicago. He reviewed the subject from the medical standpoint, that there is a serious impairment of vitality by the habitual use of alcoholic drinks. In the course of the paper he said:

"Whatever difference of opinion there may be between the temperance fanatic and the tippler, one thing is certain; the financiers all over the world who have their money invested in life insurance companies, all agree that drinkers belong in the class of hazardous risks, and their conclusions are right. Physicians, hygienists and physiologists are now a unit on the conclusion that even moderate drinking can be of no benefit to any one, that it may easily, without straining a point, lead to immoderate drinking, and that the latter, in the majority of cases, is injurious to health, not only jeopardizing the best interests of the habitue, but becoming a serious menace to him in case he should ever get sick. The outlook for a man who should fall ill with pneumonia, typhoid fever, dysentery, nephritis, heart disease, diabetes and affections of the liver, is bad enough under the best of circumstances, but if the patient is an intemperate man, his hope for recovery is reduced very materially, and the fight for life is desperate if not hopeless. Every physician who has had much emergency hospital practice or even private practice among the intemperate, can give his assent to these statements.

"We further know that men who follow hazardous occupations are frequently liable to injuries. In case the party injured is temperate, his chances of recovery from the injuries and the surgery incident thereto, are far in excess of the man who uses intoxicants.

"The matter seems to be of sufficient importance to those interested in life insurance, both as individuals who carry the policies as well as the companies who insure them. I might fortify my contentions by compiling tables and furnishing data from most unquestioned sources to show the evils of intemperance, the danger to the lives of those who look too frequently upon the wine cup when it is crimson, the misery entailed to the indulger as well as to those connected with him, the financial and moral wrecks resulting from such lives. But this is not necessary for the class I am addressing and the purposes of this paper. All of you know from ripe experience that my assertions are true, not only from observations, but because they have been proven so scientifically, no matter what your own habits and practices are in the use of the flowing bowl."

To the foregoing we add additional argument in the same direction which we find in the *Temperance Advocate:*

Dr. Richardson, an eminent English physician, by a very simple experiment once convinced an intelligent scholar of the injurious effect of alcohol.

The scholar, an intelligent young man, was singing the praises of what he called the "Ruddy Bumper," saying he could not get through the day without it, and that it gave him strength and health as well as exhilaration, when Dr. Richardson said to him, "Be good enough to feel my pulse as I am standing here?"

The young man did so, counting its beats carefully, and saying, "It beats 74."

The doctor then sat down in a chair and asked him to count it again. He did so and said, "It has gone down to 70."

The doctor then lay down on the lounge, and said, "Now count it again."

This the young man did, and in surprise said, "Why, it is only 64. What an extraordinary thing!"

The doctor then said, "When you lie down at night, that is the way nature takes to give your heart rest. You know nothing about it; but your heart, that forever beating organ, is taking a rest, and if you will but reckon it up you will find that it is a great deal of rest, for in lying down, the heart is doing ten strokes less a minute than before. Multiply that by 60, and it is 600, and multiply that by eight hours, and within a fraction it is 5,000 strokes different; and as the heart throws some six ounces of blood at every stroke, it makes a difference of some 30,000 ounces of lifting in a single night, or over 684,000 pounds every year! When I lie down at night without any alcohol, then my heart gets its rest, and my strength is renewed. But when you take your wine or grog, you do not get the rest, for the effect of the alcohol is to increase the number of strokes, and instead of getting the rest which sleep is intended to give, you force the heart to some 15,000 extra strokes in a single night, and the result is that you rise up in the morning comparatively weak and unfit for the next day's work till you have taken another drink of the 'ruddy bumper,' which you seem to think is a source of strength and the life of man below."

The young man acknowledged that this must be so. He began to reckon up the figures, and found what it was to be lifting up so many ounces so many thousand times, and the result was that he became a total abstinence man, with the greatest benefit to his health, and as he admits, to his enjoyment of life and happiness.

If those who resort to stimulants, as they say, to give them strength and health, would but consider facts and statements like these thus given above, would not multitudes who now make use of intoxicating drinks give up their use forever?

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A NOTABLE PHARMACEUTIC ADVANCE.

The two pathologic conditions which have become so common that they are now fairly looked upon as characteristic national diseases are Malassimilation and Neurasthenia. The former is the fundamental cause of all the wasting diseases, and the latter figures as the chief factor in the prevailing indigestions, anemias, neuralgias and hysterias, with all their countless and complicated manifestations.

These various and at first thought dissimilar ailments are really more closely related than is commonly supposed. The condition that is common to all of them is poverty of the blood, and poverty of the blood means both a deterioration in the quality and diminution of the quantity of the circulating medium. So evident is this fact becoming that in every chronic and in many acute diseases one of the first precautions of the medical adviser is to secure a specimen of the blood and submit it to microscopic examination.

Given a normal quantity of healthy or normal blood, there can be no serious disease present in the body.

The dyspeptic and the neurastheniac are invariably anemic, and the rational treatment of either condition is to restore the blood. The victim of anemia is almost invariably a poor feeder; and if he sometimes eats fairly well he does not digest, and therefore does not maintain his blood in normal condition either as to quantity or quality.

Time was when tincture of iron was the only remedy at the command of the physician for his combat with anemia. It is still used to some extent, and, barring a somewhat sorry history of blackened and sometimes ruined teeth, it stands accredited with many "cures." Advanced and intelligent physicians now seldom prescribe it, for the very good reason that the market affords them much better weapons.

For three or four generations the tincture of the chlorid of iron has been the sheet anchor among blood tonics. The drawbacks to its use have long been known, and it has all along been compelled to maintain its position and popularity in spite of its serious disadvantages. It is harsh in its effects on the teeth and the stomach, it blackens the stools and constipates the bowels, and it is disagreeable to take.

But times have changed. Pharmacy has grown from a secret craft to an advanced and open art. Its progress has been parallel with the progress of civilization. The trained pharmacist has supplanted the bungling apothecary, and it is no longer necessary to blacken the teeth and derange the digestion when a chalybeate is required. So necessary have these skilled manipulators and enterprising manufacturing chemists become that without them the modern physician would be fairly lost and seriously handicapped. They have learned to combine eligibility, palatability and assimilability to such an extent that the old crude forms of drugs are being universally dropped from the lists.

One of the most striking examples of this change is found in the preparation now so widely known and extensively patronized under the name of Gude's Pepto-Mangan. It meets all the requirements for an effective chalybeate with none of the old drawbacks. Its clinical success is so marked and uniform that the physician who has once tested it in a proper case will never think of returning to the old routine of tincture of the chlorid of iron for anemic patients.

Reports of its brilliant results are multiplying in all quarters.

A REALLY PHENOMENAL CANCER CURE.

The *Surgical Clinic* never spoils a story in behalf of its nearest relatives, and so relieves its mind on a new "cure" as follows:

"Man's inconsistency in 'doing' his fellow man makes countless thousands—laugh!" Thus paraphrased the old proverb applies beautifully to a great many of the palpable absurdities which serve however to "catch" the sick. The incompetent doctor and surgeon not being labeled as such is appealed to by some sufferer; he fails to relieve, and, discouraged but not yet faithless, the patient tries another. This may be a capable man, but he is "shy" on this particular malady, and instead of being able to frankly tell the poor wretch that he should consult Dr. Somebody-else he is compelled by the struggle for life to "do the best he can," with the result that once again the patient fails to derive benefit. By this time his faith in the regular physician is gone and he is ready to listen to the garrulous gabble of the quack.

That cool, calculating, sensible men should be caught by the inane rubbish these people issue is passing strange and can only be accounted for by realizing how intense is the desire of the sick man to get well and by the fact that the ordinary human knows less about himself than any other thing going.

If it were not for this would it be possible to fool any one with a statement like the following? The excerpts are from a pamphlet on "Cancer: its Cure," which is issued by a European concern with offices in New York. At the beginning this truly remarkable book says: "Cancer is in fact the produce of the transformation and degeneration of the normal cellular tissue. Irritated by the *special vice* (whatever that may mean) which pervades the economy, the cells of this tissue instead of simply multiplying and budding, as happens in other tumors, are metamorphosed at the same time and, from normal, become gradually cancerous."

So far this is most impressive, and if the quack had ceased his quacking at this point all might have been well; but, in his exuberant glee, he goes on: "The neoplasm or new tissue formed in this manner differs entirely from the normal tissues, and being therefore unable to participate in the human organism must, for that reason, be doomed to death. Its growth being complete, it is obliged to destroy itself, and it is precisely this rapid destruction—this spontaneous disorganization of the morbid production—which constitutes the last and fatal period of the disease, namely, the Ulceration of the Cancer."

Now, to the uneducated, that sounds profoundly scientific and has a roll and *bouquet* to it that makes the invalid smack his lips and ask for more. But what induced the quack to state explicitly that "the *neoplasm, . . . differs from the normal tissues and being unable therefore to participate in the human organism,*" etc., and then go on to recommend a medicine to be taken (and therefore supposedly *absorbed*) internally as a cure for that said cancer?

Truly it is said that there is such a thing as being "too smart;" that this is the truth is self-evident from the foregoing.

But alas, the unfortunate patient is not smart enough, and so the bait—bare though the hook be—catches another sucker.

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CHILD LABOR LAWS.

THREE child labor laws of far-reaching importance went into operation in the State of New York October 1. They are the Hill-Finch measures, prepared by the Child Labor Committee, and passed last winter by the legislature, in response to the appeal of settlements, churches, medical societies and philanthropic organizations throughout the State. A very large share in the enforcement of the new laws devolves upon the Health Department of this city. All employment certificates are issued to children by this department, and the most important changes in the laws relate to the conditions under which these are granted. Dr. Ernst J. Lederle, Commissioner of Health, explained the new features as follows: "The new laws do not affect the age at which children may begin to work. They merely require parents to supply some real evidence that the child has reached the required age, fourteen years. A copy either of a birth or baptismal certificate or of some other religious record or of a passport must be filed when application is made. Hitherto the parent's word under oath has been accepted regarding the child's age, and the result has been merely to put a premium on perjury. This more rigid system is successfully used in Massachusetts and Connecticut, and will undoubtedly serve its purpose here equally well. Another important change in the law is its extension to cover telegraph, messenger and delivery boys, together with all children employed in business offices, restaurants, hotels and apartment houses. The law has applied hitherto only to factories and stores, and thousands of children in these other employments have been allowed to begin work with no questions asked by the authorities as to their age or schooling. This has been especially unfortunate in the case of telegraph and messenger boys, whose occupation subjects them to the most serious moral temptations. The proprietors of these establishments must now require certificates of all children they employ under the age of sixteen, and they must see to it that such children do not work longer than nine hours a day. Regular inspection of stores is now made by the sanitary inspectors of this department, and we shall at once send our men into the various other establishments which have now been brought under the law. But in order to do this work efficiently additional inspectors are needed, and I have therefore asked for an appropriation for 1904 sufficient to allow the appointment of ten 'mercantile inspectors' who will give their entire time to this work. We hope that, with the intelligent co-operation of the public, this law may accomplish the humane end for which it was designed."

According to the Secretary of the Child

Labor Committee, Fred S. Hall, New York has now the best laws on this subject in the United States. "A few other States," he explained, "have single features in their laws which are better, the Illinois eight-hour limitation to children's work, for example, or the Massachusetts administrative system, by which children received their 'working papers' from the school authorities in each locality. But, taken as a whole, the law in neither of these States is as near the ideal as the New York law. We are constantly receiving inquiries from organizations in other States where attempts are being made to improve their laws, as well as numerous letters from prominent citizens of our own State, congratulating our Committee upon what has been accomplished. I have letters of this character from Commissioner de Forest, from Jacob A. Riis, and only a few days ago I received the following letter from President Roosevelt:

"OYSTER BAY, N. Y., September 15, 1903.
MR. FRED S. HALL,
Secretary, Child Labor Committee,
170 Fifth Avenue, New York, N. Y.

MY DEAR MR. HALL: I heartily congratulate you upon the fact that we now have, in New York State, child labor laws which, I believe, can be enforced. It is of the utmost importance that these laws shall not be left idle on the statute books. Your committee has been instrumental in securing their passage, and I wish you Godspeed in your efforts to complete the great service you have thereby rendered the community.

Sincerely yours,
(Signed) THEODORE ROOSEVELT."

John Williams, State Factory Inspector, was seen in Albany last week, and was questioned regarding the duties of the Department of Labor in enforcing the new laws. He stated that the changes made last winter remedy defects to which his department had frequently called attention in its reports. "Most of these changes relate to the conditions upon which employment certificates are issued to children by the local boards of health. About 20,000 children in the State, fourteen or fifteen years of age, receive these certificates each year, but it is expected that this number will now be considerably reduced. Thirty thousand posters have been printed giving the revised law in full, and our inspectors will see that these are placed in every factory in the State. Inspectors will also call the attention of all proprietors to the new clause which allows children fourteen and fifteen years of age to be employed only nine hours a day. Nearly all factories where children are employed operate more than this each day, and it will, therefore, be necessary to adjust work in these establishments so that the children may come later or be dismissed earlier or be given a longer noon recess. The law is a humane one when you consider that children are not accustomed to the long hours which regular factory work involves. Their school life keeps them indoors but five hours a day, and to exchange this suddenly for ten hours in a factory, with overtime at intervals, places on them a strain which they cannot bear without injury. I regard the flat prohibition of overtime as the most important change which comes within our province to enforce. In all of this, however, the department needs the hearty co-operation of the community. Our 37 inspectors cannot begin to cover the State with sufficient thoroughness to discover all violations, especially those relating to hours of work, and we therefore welcome information from individuals who know of cases where the law is not observed. It would be well for the manufacturers of the State to understand that it is our intention to enforce the amended law vigorously. If, after due notice, they disregard its provisions, we shall not be satisfied with the dismissal of the children illegally employed, but shall instruct our inspectors to prosecute all violations. This department is frequently blamed for not enforcing the child labor law in department stores, but inspection of these establishments is outside of our province. It belongs to the health authorities in each city, who are authorized both to make inspections and to prosecute all persons found violating the law. The firm of Humbert & Andrews, 646 Dean Street, Brooklyn, was prosecuted recently by one of our deputies, and fined $140 for employing seven children under the legal age—fourteen years; and other cases of the same character are awaiting trial there."

Foreign Correspondence.

From a Special Correspondent of the Dietetic and Hygienic Gazette.

Paris, September 28, 1903.

The disaster of some months back, in the Paris Metropolitan or subterranean railway, is undoubtedly well known to the American public, and I refer to it here on account of its interest from a hygienic standpoint.

In my last communication I stated that the Metropolitan was receiving the attention of the French Hygienic Society, who were endeavoring to improve its many shortcomings, among them the bad ventilation. Subsequent analysis of the air of the Metropolitan showed it to be laden with excessive quantities of CO^2, more than the air in the streets above, which of course contains greater quantities of this noxious gas than pure country air.

The company tried to remedy this evil by renewing the air in the tunnels by means of air pumps at night time when there are no trains running. But it is evident that such a makeshift is entirely inadequate. As matters stand now the only ventilation of the Metropolitan is through the entrances at the stations. Between the stations there are no openings for the ingress or egress of air. It stands to reason that in case of smoke in the tunnel every living being must necessarily be suffocated in a short while.

The accident in question occurred at a station, but the ventilation at the stations themselves is very inadequate, and as the only exit of the smoke was through these entrances, it can easily be seen how hard it was for the unfortunates who were caught there to escape. They were simply suffocated. I saw a man who happily escaped alive from the hecatomb. He stuffed up his mouth with a handkerchief and thus stopped breathing, and by the aid of matches he found his way outside. He had headache, embarrassed respiration, suffused eyes—in fact the symptoms of aborted suffocation by smoke, which symptoms lasted for over a week after the accident. There is no doubt that if the ventilation were adequate there would not have been such an appalling loss of life. But unfortunately the dictates of hygiene are disregarded in daily life. And this brings me to speak of another calamity which causes yearly a hundredfold more victims than the number of those that perished in the above-mentioned accident, namely, tuberculosis.

This dread disease has actually become the scourge of the human race, and in France it has become a national malady and a terrible calamity; and I am sure that the people are paying the penalty of an unhygienic life. Hygiene is a thing that will not let itself be trifled with, and if people do trifle with it sooner or later they will have to pay for it with their health or even lives. According to statistics, France and Russia have the unenviable reputation of having the highest mortality from tuberculosis, namely, 3,000 per million for the former and 4,000 per million for the latter. Statistics are notoriously unreliable, but from personal observation I can say that the number of people sick with this dread malady in Paris is simply appalling, and things cannot be otherwise than they are now because of the unhygienic conditions obtaining here. In my last communication I slightly touched on these points. Since then I have been able to look more closely into the matter, and I have found things still worse. I think it may be profitable to state briefly some of the hygienic, or rather anti-hygienic conditions obtaining here, in order that it may serve as a warning to people who wish to avoid diseases.

The houses occupied as dwelling places by the lower classes are in a very unsanitary state. The water-closets in many houses are dirty, stinking closets without any water. The discharges in many of these closets fall down into a tank, which is emptied by pumps in the old-fashioned way. The closets as a rule have no seats, and the urine falls all over the floor of the closet. Flies infest the closets situated in yards; they fly thence through the open windows into the dwellings, settle on the food, and thus spread infection. The closets are hardly flushed by water, as the more water comes down into the tank the sooner it will have to be emptied and the greater the expense for the landlord. The housekeeper, therefore, sees to it that no water should be poured into the sink of the closet in order to flush it out. People living in such houses suffer from gastro-intestinal diseases, anæmia, weakness, and catarrh of the eyes, and are in a fit condition to become victims of tuberculosis. The children are pale, weak, and are carried off by various maladies. The dwellings have no bath-tubs, no wash-tubs, and consequently there cannot be much bodily cleanliness.

Above all, there is insufficient and vicious diet. I have previously expressed my opinion that animal food is a prophylactic against microbic diseases, especially tuberculosis; and the more I look into the matter the more I am confirmed in the correctness of this opinion. Animal food acts as an antitoxin in the case of tuberculosis. The carnivorous animals are by far less susceptible to tuberculosis than the herbivoræ. It is known that the rabbit and the cabaye or India pig are the best animals to experiment upon with the tubercle bacilli on account of their great susceptibility to these microbes. Now, the French lower classes consume comparatively little animal food, much less than the Englishman, and, of course, than the American. Of salads and *legumes* such as peas, beans, etc., the Frenchman eats considerably; but as to meat he usually takes a small plate containing about three ounces of it. Other animal food, such as fish, eggs, etc., he also consumes very sparingly. In sum, the French people in the lower walks of life consume by far less of animal food than the Anglo-Saxons in the same condition of life. The latter have been known from time immemorial to be a beef-eating people. On the other hand, the Frenchman eats a great deal of bread, by far more than the Anglo-Saxon, and, which is worse, he consumes great quantities of cheap wine and also of strong coffee. A Frenchman sits down to his meal on the average of half a liter of wine, and consumes daily on the average about two liters of wine of poor quality. The women also drink wine. Under such conditions of diet and hygienic surroundings it is not surprising that tuberculosis is making great ravages.

The congress for tuberculosis will be held in Paris in the month of October. It is not likely that any practical results will come out of it as long as the conditions described above continue to exist. The greatest medical discovery will accomplish little if people will ignore the elementary principles of hygiene.

The indications for the checking of the spread of tuberculosis in Paris are sufficient consumption of animal food, cleanliness, and the suppression of alcoholic drinks, especially the cheap wine, which is the curse of the French people. The same rules, of course, apply anywhere else; but I say Paris, because this city unfortunately seems to have gotten a great share of this malady. Of course there are many other hygienic points which must be observed, but diet seems to me to be of the utmost importance, and next to it is cleanliness. The tubercle bacillus is, as is well known, ærobic—that is, it grows in the presence of oxygen. Fresh air, therefore, will not destroy this bacillus once it gets a foothold, nor will cleanliness act as an antiseptic or germicide. But cleanliness and fresh air will do so much that they will keep the body in proper condition and thus will help it better to resist the invasion of this disease as, in fact, of all other diseases. Animal food, however, acts as an antitoxin, and in localities where tuberculosis is prevalent, where unquestionably everybody more or less inhales the noxious germs, animal food in sufficient quantities is absolutely necessary.

As I understand, there has been a law passed condemning the present system of plumbing in Paris. But the landlords have combined together and are fighting this law. They have obtained so far a respite of several years, and meanwhile people are perishing by the thousands. What can a congress for tuberculosis do under such conditions?

Metchnikoff has recently communicated

to the Paris Academy of Medicine his experiments, carried on at the Pasteur Institute, with regard to the communicability of specific diseases to animals other than man. It is well known that all previous attempts to inoculate animals with syphilitic virus have failed, and man alone seemed to have the undesirable privilege in this malady. After repeated attempts, however, Metchnikoff has succeeded in inoculating a female monkey of the chimpanzee type with this disease, and it has developed a well-marked primary sore. Whether the disease will go through its regular evolution and pass through the secondary and tertiary stage is a question that will be decided by the future.

Syphilographers are very enthusiastic over this result, as it will enable them to experiment and to study the disease to great advantage. So far, however, the experiments are very costly, as Metchnikoff and Roux, who worked together, paid out of their own pockets a considerable sum of money for the monkey, which, as said above, is of the highest type of development, and not easily obtainable. The monkey in question was recently brought from Africa.

E. PALIER, M.D.

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CLINICAL NOTES ON DYSEMIA.*

By LOUIS J. GRAVEL, M.D.,

Physician-in-chief to the Hotel Dieu Hospital and Chief of the Laboratory, Montreal, Canada.

THE word anemia is a misnomer and serves to perpetuate an erroneous idea of the conditions to which it is applied. It had its origin at the time when scientific medicine was in its infancy; before the microscope and other instruments of precision had elucidated the physiology and pathology of the blood and blood-forming organs. In those days the pallor of the skin and mucous membranes was attributed to "a diminution of the amount of blood," and even at the present day there are physicians who still share in this fallacy. From a pathological standpoint, the chief features of the so-called anemic state, are the morphological and chemical changes in the blood—its qualitative deterioration. It, therefore, has been suggested that the term dysemia (bad blood) would more closely describe the conditions present. However, a word which has the sanction of usage for so many years cannot be easily displaced, and will probably long survive in medical nomenclature.

There is only one criterion on which to base a diagnosis of dysemia, and that is the changes in the blood. The other symptoms to which much significance was formerly attributed—pallor of the skin and mucous membranes, rapid pulse, and palpitation, general weakness, vertigo, and the like—are of doubtful value, since they are present in various conditions in which the state of the blood is normal. Thus, for instance, they may result from purely psychical causes—fear or anxiety—or occur in the course of chronic digestive disorders, or neurasthenia.

To estimate the degree of dysemia the diminution in the percentage of hemoglobin is of the greatest importance, and this may range within wide limits, even to one-fifth of the normal proportion. Next in importance is the reduction in the number of red blood corpuscles, which, however, is perceptible only in the more marked cases. In the severe types of the disease reductions to 50 per cent. are quite frequent. There is also a change in size and shape of the red blood-cells, known collectively as poikilocytosis, in the pronounced form of dysemia. Usually the corpuscles are diminished in size and their shape becomes irregular; there may be granular deposits in their protoplasm. Sometimes there may be found in the blood the so-called normoblasts, which are nucleated red cells, resembling those present in the red bone marrow. The latter have been specially observed in dysemia, following profuse losses of blood, but in any case are of no significance.

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* Reprinted from the *Buffalo Medical Journal*, August 1903.

These remarks apply only to the simple types of dysemia and not to the progressive pernicious forms, characterized by changes in the blood-forming tissues. As pointed out by Ehrlich and Lazarus in an excellent article on this subject, to which I am indebted for much information, the radical difference between the simple and pernicious varieties of dysemia is that in the former the regeneration of blood takes place in a physiological manner, while in the latter it reverts to the embryonic type, as shown by the presence of foreign elements. The majority of cases of simple dysemia are secondary to diseases attended with malassimilation, tissue waste, hemorrhages, and profuse discharges, while it is important to remember that it is often due to a condition of autotoxemia, or to the absorption of toxins generated by bacteria. It is, therefore, not enough to make a diagnosis of dysemia, but the primary cause should be sought and removed if possible.

The treatment of the changed condition of the blood consists in the adoption of an appropriate regimen—a nutritious dietary, fresh air, and sunshine—in connection with the administration of iron supplemented occasionally with arsenic. Hydrotherapy is a very valuable auxiliary in some cases. The patient should rest as much as possible, and in severe cases should take a vacation in the mountains. Long before modern hematology had its beginning, iron was administered on empirical grounds, and all that modern medicine has contributed to the therapy of dysemia is the introduction of ferruginous compounds, which are not only superior in efficacy to those in former use, but free from their objectionable features. The chief disadvantages of the older iron preparations were their disturbing effect upon the digestion, their tendency to produce constipation, and their destructive action upon the teeth. It is a notable achievement of pharmaceutical chemistry to place at the physician's disposal organic ferruginous compounds, which approximate closely in composition to the form in which iron is contained in the red blood-globules. The most prominent preparation of this kind is Pepto-Mangan (Gude). This consists of iron and manganese in the form of peptonates, which, representing albuminous elements in their last stage of digestion, are immediately absorbed and assimilated, without undergoing any previous transformation in the gastrointestinal tract. The presence of manganese in combination with iron in Pepto-Mangan is based upon the fact that both of these elements are found associated in the red globules.

Having had my attention directed to this preparation through the reports of leading authorities in European and American journals, I subjected it to a thorough test in the Hotel Dieu Hospital, Montreal, and have briefly recorded here the histories of a number of typical cases in order to demonstrate its efficiency in dysemia, as shown by the rapid increase of the hemoglobin percentage and number of red blood-cells.

Case I.—A woman, aged 25 years; dysemia. Time of administration, 30 days. First count, 3,376,400 red corpuscles to the c.mm.; second count, 4,400,300 to the c.mm. Hemoglobin: first examination, 51 per cent.; second examination, 70 per cent.

Case II.—A girl, aged 20 years; dysemia. Time of administration, 30 days. First count, 2,630,200 red corpuscles to the c.mm.; second count, 3,970,000 to the c.mm. Hemoglobin: first examination, 40 per cent.; second examination, 60 per cent.

Case III.—A man, aged 25 years; dysemia, following typhoid fever. Time of administration, 30 days. First count, 2,500,200 red corpuscles to the c.mm.; second count, 3,950,000 to the c.mm. Hemoglobin: first examination, 39 per cent.; second examination, 50 per cent.

Case IV.—A woman, aged 39 years; dysemia. Time of administration, 30 days. First count, 2,750,400 red corpuscles to the c.mm.; second count, 3,500,000 to the c.mm. Hemoglobin: first examination, 35 per cent.; second examination, 60 per cent.

Case V.—A woman, aged 35 years; dysemia, following miscarriage. Time of administration, 30 days. First count, 2,800,000 red corpuscles to the c.mm.; second count, 3,300,000 to the c.mm. Hemoglobin: first examination, 33 per cent.; second examination, 45 per cent.

Case VI.—A young girl, aged 17 years; dysemia, following typhoid fever. Time of administration, three weeks. First count, 2,495,270 red corpuscles to the c.mm.; second count, 3,300,200 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 35 per cent.; second examination, 45 per cent.

Case VII.—A young boy, aged 16 years; dysemia, following typhoid fever. Time of administration, three weeks. First count, 3,670,000 red corpuscles to the c.mm.; second count, 4,600,300 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 40 per cent.; second examination, 65 per cent.

Case VIII.—A man, aged 30 years; dysemia, following amputation of the leg. Time of administration, three weeks. First count, 2,360,400 red corpuscles to the c.mm.; second count, 3,500,200 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 30 per cent.; second examination, 70 per cent.

Case IX.—Woman, aged 24 years; dysemia, following pneumonia. Time of administration, three weeks. First count, 2,600,250 red corpuscles to the c.mm.: second count, 3,400,000 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 35 per cent.; second examination, 70 per cent.

Case X.—Woman, aged 20 years; dysemia, following miscarriage. Time of administration, three weeks. First count, 2,502,600 red corpuscles to the c.mm.; second count, 4,006,200 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 40 per cent.; second examination, 65 per cent.

Case XI.—Man, aged 32 years; dysemia, following typhoid fever. Time of administration, three weeks. First count, 2,300,000 red corpuscles to the c.mm.; second count, 3,640,160 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 33 per cent.; second examination, 62 per cent.

Case XII.—A girl, aged 16 years; dysemia. Time of administration, four weeks. First count, 2,290,700 red corpuscles to the c.mm.; second count, 3,800,200 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 40 per cent.; second examination, 60 per cent.

Case XIII.—A girl, aged 16 years; dysemia. Time of administration, four weeks. First count, 2,430,300 red corpuscles to the c.mm.; second count, 4,000,300 to the c.mm. Hemoglobin (percentage of normal amount): first examination, 40 per cent.; second examination, 65 per cent.

Comparing my results with Pepto-Mangan (Gude) with those obtained from other chalybeates of this class, I have been led to give it decided preference. As already stated, the only reliable means of diagnosticating dysemia is by the examination of the blood, and for the same reason the only way of testing the efficiency of a ferruginous preparation is by making blood-counts and estimating the percentage of hemoglobin. On the ground of my findings, as shown by the histories of the cases cited, the results of such tests have been uniformly satisfactory and entitle the preparation to a leading place in ferruginous medication.

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SNAPSHOTS IN HADES.

The Substitute-Selling Druggist—Great Pluto! Give me a drink of water to cool my parched tongue!

Demon—We haven't any water, but here's something of our own make that's just as good.—*Life.*

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DERANGED UTERINE FUNCTIONS.

It is safe to say that to the average physician, who is confronted almost daily with the ordinary cases of suppressed and deranged uterine function, no other class of cases is so uniformly disappointing in results and yields so sparing a return for the care and time devoted to their conduct. Patients suffering from disorders of this nature are usually drawn from the middle walk of life, and, by reason of the pressure of household duties or the performance of the daily tasks incidental to their vocation, are entirely unable, in the slightest degree, to assist, by proper rest or procedure, the action of the administered remedy. Many of these patients, too, suffer in silence for months, and, even when forced by the extremity of their sufferings to consult the physician, shrink from relating a complete history of their condition and absolutely refuse to submit to an examination. Authoritative medical teaching and experience unite in forcing upon the attendant a most pessimistic view of his efforts in behalf of these sufferers under such conditions.

It is in this class of practice, where almost everything depends upon the remedy alone, that a peculiarly aggravating condition of affairs exists. A very limited list of remedies of demonstrated value is presented for selection, and I believe I am not wide of the mark in saying that, in the hands of most practitioners, no remedy or combination of remedies hitherto in general use has been productive of anything but disappointment.

Some time ago my attention was drawn to Ergoapiol (Smith) as a combination of value in the treatment of a great variety of uterine disorders. Its exhibition in several cases in my hands yielded such happy results that I have used it repeatedly in a considerable variety of conditions, and with such uniformly good results that I am confirmed in the opinion that its introduction to the profession marks an era in modern therapeutics. In the treatment of irregular menstruation and attendant conditions, I have found it superior to any other emmenagogue with which I am familiar, in the following important particulars:

1. It is prompt and certain in its action.
2. It is not nauseating and is not rejected by delicate stomachs.
3. It is absolutely innocuous.
4. It occasions no unpleasant after effects.
5. It is convenient to dispense and administer.

* *

MAN'S RIGHT TO HIS VERMIFORM APPENDIX.

Dr. John Henry Carstens' argument to the State Medical Society against the indiscriminate removal of the vermiform appendix appears to be irregular and unethical. We have always been taught to believe that vermiform appendices were what the lawyers call feræ naturæ—wild things in which nobody can claim property, and which anybody is free to take. The better the appendix, the better the operation and the more sport in the chase.

At this late day we cannot accept Dr. Carstens' theory that a healthy appendix ought not to be removed. An appendix is an appendix whether healthy or not, and modern surgery has definitely ascertained that the function of the appendix is to be amputated. That is its place in the economy of man, and for countless ages nature has directed her efforts, in the process of evolution, to the beneficent work of producing a vermiform appendix that could be easily separated from the patient together with $250. She has succeeded, and when Dr. Carstens advises that the appendix be left alone to wither and flap like the last leaf on the tree, it strikes us that he is counselling the surgeons to violate the ordinances of nature.

If Dr. Carstens would content himself with an imitation of the fish and game laws, and advocate a closed season for the appendix, the suggestion might be worthy of serious consideration. Perhaps it might be better for everybody if no appendices were taken, say, between the first of July and the first of October, and none less than four years old, and not more than twenty-five by any one surgeon in a season, unless the taking of the appendix were absolutely necessary to the feeding of the doctor's family. This would be a reasonable regulation, and it would tend to eliminate the mere pot hunter, who slashes recklessly and has a tendency to remove more appendices than his bank account really requires. However, the details of the closed season can be worked out later. We have no desire to usurp any of the medical society's functions; but it is none too soon to protest against the pernicious doctrine that a man has a right to keep his vermiform appendix merely because it is healthy, or that he has any property rights whatever in his appendix. The time has not yet come to beat the scalpels into plowshares and the forceps into pruning hooks.—*Detroit Free Press.*

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THE TREATMENT OF SYMPTOMS.

In a highly interesting article on this subject, Walter M. Fleming, A.M., M.D., of New York City, uses the following language:

"Long experience in the treatment of diseases in their incipiency, evidences beyond all debate, that almost invariably the attack in a large proportion of cases is inaugurated by febrile symptoms of greater or lesser severity. Also, it may be noticed that constipation or torpid inactivity of the bowels prevails. Therefore, the first indication in the incubation or incipiency of the attack, of almost any form or nature, is primarily to allay the fever, pain-nervousness and solicitude of the patient, and secondarily to empty the alimentary canal. These two ends being accomplished, a long advance toward a possible abortive issue of the attack has been made, or in any event, the first indication and requirements are fulfilled, in proper progress toward a cure.

"Thus in the primary treatment of the numerous ills, which are characterized by the above-quoted symptoms, the physician will find Laxative Antikamnia and Quinine Tablets at once handy, convenient and reliable, safe and sure, and to which the turbulent symptoms of fever, constipation, pain-sleeplessness, nausea and generally wretched depression yield so promptly and gracefully that it is certainly refreshing to the physician himself, to note the change in his patient, from suffering and solicitude to comfort and quiet. I certainly know of no other remedy which will so readily and decisively allay and control the symptoms above enumerated."

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Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. PATCHEN, M.D.

TRUE AND FALSE REMEDIES.

EVERY one, be he physician or layman, deprecates the fact that so many different and even opposing methods and systems of medical treatment exist. It certainly would be more satisfactory were there only one. But instead of diminishing from year to year as our knowledge of hygiene and of the causes and nature of disease advances, they are actually increasing.

To many, perhaps to the majority of people, this fact seems strange and unaccountable, but a little reflection makes the reason evident. It is due solely to ignorance. Or, expressing the same idea in terms less harsh and less humiliating, it is because we do not all possess the same kind and degree of knowledge concerning the relation that exists between every disease and its true remedy. There never is and never can be any difference of opinion in regard to a subject about which every one possesses the same and equal knowledge.

Our knowledge of the science of therapeutics is still incomplete; it is not only fragmentary, but every one does not possess the same fragments. There will undoubtedly come a time when we shall have acquired a perfect knowledge of the subject, but until this much-to-be-desired period arrives different methods of treatment must continue to exist, with their more or less numerous advocates and disciples, because in this, as in every other inexact science, theory, whether right or wrong, regulates and controls its practical application. Hence every accepted theory of disease and its relation to health must find expression in some formulated method of treatment.

So numerous are the methods of treatment which claim recognition, if not superiority, that we have neither time nor space to ascertain, by a critical examination, the particular merit that each one may possess. Nor is it necessary. The reader can, at any time, readily and impartially determine for himself what they are by observing how closely they comport, in any given case, with the requirements of an ideal remedy. What these requirements are will appear later.

Although we have not yet succeeded in acquiring all the knowledge which the science of medicine has in store for us, the following facts, which are a sufficient guide for all therapeutic endeavor, have been incontrovertibly established.

1. That the human body is a perfect, automatic and self-repairing mechanism whose normal, unobstructed action always results in health.

2. That disease, whatever may be its cause, nature or location, is not an entity to be destroyed within the system or to be dislodged from it, but an abnormal condition to be corrected; that it is due to either an excessive, deficient or irregular action of the processes of nutrition and cannot exist separately or apart from its causes.

3. That there exists no curative power or

force except that contained in and manifested by the system itself—the *vis medicotrix naturae* of the older writers.

4. That a remedy is any substance or process, material or immaterial, which is able to remove the causes of disease, and that the best or ideal remedy for any given disease is the one which will remove its causes in the safest, most prompt, agreeable and permanent manner.

In fact, tersely stated, *the science of therapeutics is simply the science of removing the obstacles which, by accident, habit or environment, interfere with the normal functions of the body.*

This being the case, the most important thing to know is which one of the many methods so urgently presented should be selected as the most suitable to employ in any given form of disease. The problem is not as difficult as it at first appears. A careful survey of the therapeutic field reveals the fact that all of the alleged curative methods that dot its surface may not only be reduced to three kinds or classes—the chemical, mechanical and mental—but that in each of these classes there are only a few which are really representative. The others possess so many of the essentially curative factors in commom that any one of them might be successfully substituted for either of the others, the choice being determined entirely by propinquity.

As a result of the discovery of the fundamental therapeutic fact that disease cannot be antidoted; that, accidents and injuries excepted, every departure from health is always due to faulty action of one or more of the vital processes of nutrition, and that its removal can be accomplished only by such means as will restore normal function in the parts and organs in which it is wanting, there has been a constantly increasing lack of faith in, and distrust of, chemical remedies and a corresponding decline in their use.

This change of faith and practice is not without reason, for although all nutritive processes are largely chemical they are also essentially vital, which means that co-operative activity of the parts and organs which furnish the arena for each successive chemical process is as necessary to insure perfect results as the process itself. Hence the futility and failure of all attempts to induce and maintain in the body, by chemical agents, the physiological changes necessary to health which experiments in the retort and crucible lead us to believe are possible.

* *

EXERCISE *VERSUS* WORK.

By H. Speck, M.G.,

New York City.

Most any kind of physical work is considered exercise, and with a strong and healthy person it may matter little in what particular way exercise is taken, so long as it is taken at all and not overdone. It is quite different with an ailing person for whom exercises are used for therapeutic purposes. Here a distinct difference must be made between work and exercise, especially where overwork is the cause of the ailment, as is very often the case. In such cases exercises should be administered as carefully as any other therapeutic agent and in such a way as to produce a stimulating effect upon the muscles whose action promotes the circulation of the blood and has a soothing effect upon the nerves. To accomplish this with the least possible expense of vital energy is the merit of exercising.

This rule is not generally observed, and exercising is often done in such a way as to merely add more work when the vital power is already overtaxed. The result of this way of doing is fatigue and, often, even exhaustion instead of the desired stimulating effect. Even outdoor exercise is generally obtained at too great an expense of vital energy, as it is not only done to an excess but also too mechanically. Walking, as has been stated by medical authorities, but for the breathing of fresh air it necessitates, is poor exercise. Especially is this the case in crowded streets, where one's attention is constantly attracted to something or another, and concentration of the mind, which is of no less importance, is rendered impossible.

Thus walking and even other outdoor exercises are made simply work and often drudgery. The best exercise, especially for those not in robust health, is massage and resisting movements. The patient, being in a state of physical rest, is able to concentrate his thoughts upon the process, and a skilled and experienced operator will always regulate and restrict the manipulations to the responsive capacity of his patient.

Thus the patient obtains the greatest possible amount of *real* exercise with the least possible expense of vital energy. The value of massage is conspicuous especially in cases where overwork is the cause of ailments and rest as well as exercise is needed.

1238 Third Avenue.

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PHYSICAL TRAINING AT WORLD'S FAIR.

From a morning daily we clip the interesting statement that the subject of physical training is to receive more appreciative attention than has been accorded to it in modern times, in fact since the days of the Olympian Games:

Secretary J. E. Sullivan returned recently from St. Louis, where he went to attend the meeting of the physical training experts to arrange the physical training program for the World's Fair. A very elaborate program was arranged, by far the most extensive of its kind ever prepared by any organization.

It is the intention to have this part of the Olympic Games broad, and to cover the educational and scientific phases of the subject as adequately as is the competitive part already outlined. Dr. Gulick has been in correspondence with all the members of the physical training committees, and his report embodies the important suggestions that have been received from them. It has been decided to present a comprehensive view of the practical side of physical training by a series of exhibitions.

THE FIELD AND SCOPE OF MEDICAL GYMNASTICS AND MASSAGE.

By H. C. Thompson, M.D.,

New York.

This subject is treated from an empirical standpoint. It is drawn from the observation of the Physician, instead of from that of the Medical Gymnast or Masseur. The writer does not make any pretence at completeness in the treatment of the subject, but intends to merely quote the following views in brief, as suggestive to the physician who may read them.

Sydenham, in the seventeenth century, said, "Exercise is the best medicine for the body, as it excites the flow of spirits and facilitates the excretions from the blood." The implied physiological action is a desirable end in many maladies; and the study as to the extent of the applicability of exercise shows an ever-widening field of diseases outside of its usefulness in the treatment of the convalescent period and its prominent place in prophylaxis. Exercise assists nature in the restoration of the normal performance of various vital functions, using it, according to the indications, in the form of massage manipulations, local or general; or, in the more energetic form of movements, passive, active or restorative, without or with apparatus, local or general.

Viewing this branch of mechano-therapeutics, embracing in the term of exercise both movements and manipulations, it is hardly fair to say, as has been sometimes said that exercise is of no value, or is contraindicated. In a similar way might drugs be regarded. It cannot, in cases of failure, be honestly stated that drugs are of no use in this or that case; but, rather, drugs, as I used them, or know of them, are of no value; for some other physician by the means of other drugs or pursuing a different course with the same, may help through the use of drugs. So, in the matter of exercise, it is fairer to say exercise, as I have prescribed it or as I know of it, is of no value or is contraindicated. There is no better illustration of the above than that which the history of medical gymnastics and massage of the past fifteen years gives us. Previous to that time, most physicians would have said there is no value in movements or manipulations in the treatment of heart diseases, locomotor ataxia, chorea, spasmodic neuroses, peripheral palsies, gynecological cases, pulmonary cases, eye diseases, scoliosis, fractures, and digestive maladies, until such practitioners as Oertel, Schott, Erb, Frankel, Wolff, Brandt, Riegel, Pagenstecher, Roth, Landerer, Championierre, Woolsey, and Reibmayer have demonstrated their value beyond question.

What the next fifteen years may bring is naturally speculative. It should tend to bring about more concise methods in treatment, and to fix more definitely the limitations of its use in the maladies in which it is now recognized to be of benefit. It is not improbable that its field will embrace more diseases; some of an acute character. Dr. Hare, professor of therapeutics of Jefferson Medical College, prescribes it in the treatment of typhoid fever; its benefits being the prevention of bed sores; a reduction to some extent of the temperature, because, without massage, the thickness of the muscles, especially of the back, interferes with the proper loss of heat; and the fact that, with it, the system seems able to assimilate with safety from the beginning the usual dietary of the early convalescent period.

Reports of the value of this method in diseases new to it have, in the past, and probably will in the future, largely emanate from the physician, who is to decide as to the effect if it is a helpful factor in the treatment. It is the field of the physician to diagnose, prescribe, and have the full charge of cases. If medical gymnastics and massage is to have its full scope of usefulness and progress, first it must be commended by physicians in those diseases in which it has proved its usefulness and when it does its part in conjunction with other treatment; and, secondly, the treatment itself must be placed in the hands of the men and women engaged in this profession who are the best qualified.

The credit belongs to the physician, as it is through his prescription that the patient takes it, although the practical carrying of it out must be the field of the medical gymnast or masseur, as here special training is required. Some manipulations have a relaxing effect in spasmodic neuroses, while other manipulations would simply aggravate the condition; some manipulations affect more particularly the venous and lymphatic circulations, while others the arterial; some have a stimulating effect, while others have a sedative; also the manipulations must vary according to the location, nature and function of the viscera or tissue to be treated. What is true of manipulations in the requirement of special training, is equally true in the matter of movements. If we consider the difference in diseases we must appreciate that the prescription of exercises for each disease must naturally be different; also, with different individuals, although the disease may be the same, the various degrees of strength possessed by each require a corresponding gradation in the matter of exertion, so the movements must be modified to suit the individual; then, with same disease and same individual, the movements must be modified to correspond with progress of the cure; and, finally in the same disease, the movements must be prescribed in view of any modifying conditions, as anæmia or plethora, or co-existing lesions of viscera, other than those implicated by the disease in question. Thus we see that a wide and discriminating knowledge of exercises is necessary. The scientific practitioner of medicine knows every thing about drugs that is possible to be learned, and is therefore enabled to use selective judgment in the matter of drugs of the same class; also, the helpful use of assistive or corrective medication. The knowledge of only a few drugs would handicap a physician. So a more complete knowledge of movements, permitting a discrimination, is of value. Without this discriminating knowledge the exercise might not only be of no value, but rather be of direct detriment, as the movements might not be adapted to accomplish the desired object; or they might be entirely too severe, or too trivial to bring about any results. A consideration of the necessary prescriptions of exercise in scoliosis, pes planus, chorea, peripheral palsies would easily illustrate this important point. In the matter of heart diseases, we can readily see the danger of movements, if too severe. Here, too, the value of the assistive movements of the respiratory exercises in facilitating the venous and pulmonary circulations becomes apparent. Again general massage might be introduced into the daily routine, as an assistive measure, at a different time of the day with value, with or without the local percussive massage over the præcordial region, which some authorities especially advocate. In regard to the exercises themselves they should be graded, in point of exertion, as baths are graded in strength. From the simple, individual, resisted movements of the Schott method, one can go gradually to the more complex movements, which require more of an exertion, going over the entire body in a carefully increased gradation as to exertion, keeping pace with the increasing tone of the heart, yet observing the same precautions as to pulse, respiration and rests.

In regard to the ataxia of tabes, by being informed upon all the various means of educative exercise given by different authors, one can more readily adapt and invent exercises to a patient's taste, aptness and need alike, with variety, observing the precaution against overdoing. Begin the education, if need be, by passive, and later by assistive performance of the movements. Then, with one who, through the ataxia, is compelled to be more or less inactive physically, massage, in a general way, outside of its prescription in other pathological conditions of tabes, would assist the performance of the various functions. Thus, in its benefit to the general health, it would be assistive to the exercise treatment. Later, various general exercises such as nearly every authority recommends, in connection with their educative prescriptions can be added. Certain massage manipulations following the exercising, would assist the lymphatic and venous circulations in removing the waste, and thus lessening a tendency to the unappreciated fatigue.

Not through unwillingness nor unappreciativeness of the value of medical gymnastics or massage, although perhaps not realizing the scope as outlined in the latter part of this article, have many physicians refrained from prescribing it, but from the fact of not knowing to whom they could entrust the cases in order to have the work intelligently and safely carried out. There have been, are, and may always be, many charlatans engaged in this work. The more technically intelligent the practitioner of medical gymnastics and massage is the more certainly can the physician look for the benefit to be derived from either the medical gymnastic or massage treatments given.

From the medical gymnast or masseur as a factor in securing therapeutic results, we now proceed to a consideration of the scope of the work along the line suggested by the opening paragraph of this article.

Diabetes.—Glycosuria is diminished as a result of muscular work in many cases. There is an undoubted improvement in the circulation, intestinal peristalsis, and self-reliance of the patient. In mild forms the most extensive use of muscular exercise should be made; the severer forms require passive gymnastics and massage.—Carl H. Van Noorden, formerly Professor Therapeutics, University of Berlin.

Methodical muscular exertion is hardly secondary in importance to the regulation of the diet.—Alba.

Sugar circulating in the blood is destroyed when the muscles are working.

Gout.—Exercise promotes oxidation and improves excretion. Massage is very useful to counteract the development of rigidity. —H. M. Lyman, Professor Medicine, Rush.

A fit of gout is due to stasis in the capillaries in the affected joint. A threatened attack may be warded off by massage and exercise.—Geo. Balfour.

At the beginning of the century Wm. Balfour, of Edinburgh, had a great reputation for the treatment of rheumatic affections by massage. Occasionally he attacked more acute ailments with a boldness and success which were remarkable.—*Lancet,* August 13, 1899.

Arthritis Deformans.—The line of treatment which has in my experience proved most effectual is that which consists in massage, combined with douching without actual immersion.—Archibald E. Garrod, F.R. C.P., London.

So much depends upon the efficiency of the massage that much of the reputation of certain resorts is actually based upon the skill of the manipulators.—Pepper, Vol. III.

Massage will be found of great benefit if followed out regularly.—Treves Surgery, A. E. Barker, F.R.C.S.

In every feasible way joint movement should be maintained by active and passive movements.—Parks' Surgery.

Osteo-Arthritis of the Foot (tubercular). —M. Routier cited the case of a patient who was rapidly cured in six weeks by massage, after all other methods of treatment had been tried without success.—*N. Y. Medical Times.*

Chronic Rheumatic Myositis.—Massage applied at the proper time is often an efficacious way of combating the atrophy.—G. S. Dujardin Beaumetz, Paris.

Chronic Rheumatism.—Massage is indicated as a method of treatment.—Hoffa.

Nephritis.—In the acute, productive form, daily massage and compression by leg bandages is of real value ofttimes.—Francis Delafield, Professor Medicine, Columbia.

Obesity.—Exercise and massage are corrections, by improving the oxygenation of the tissues.—Campbell.

Muscles should be stimulated by exercise in proportion to the existing power. If atheroma has developed, in no case should exercise be altogether dispensed with.—Max J. Oertel, Professor Medicine, University Munich.

Anaemia.—Moderate exercise is an advantage in the treatment which cannot be neglected.—Stengel.

Massage is an useful adjuvant.—Comby.

Chlorosis.—After the blood begins to improve give massage and passive exercise, then, later, general exercise.—Stengel.

Hypertrophy and Dilatation of the Heart. —Chronic degenerations are best overcome and muscular tissue best developed by systematic exercise. Too much rest favors processes of degeneration.—Jas. T. Whittaker, Professor Medicine, Ohio Medical College.

Mitral Stenosis.—Systematically develop by cautiously graded exercise.—Whittaker.

Aortic Stenosis.—Excessive rest favors degenerative changes, so give regulated exercises.—Whittaker.

Aortic Insufficiency.—The first evidence of degenerative change may be counteracted by developing the muscular fibers under both fresh air and exercise.—Whittaker.

Fatty Degeneration of the Heart.—Take of baths, exercise and massage in the treatment.—Whittaker.

Heart complications of gout are best counteracted by gradation of exercise.—Whittaker.

The exercises and baths of the Schott treatment accomplish the same end, that of drawing the blood from the congested heart, thus giving it time for rest and recuperation; the exercises, by the demands for more blood for the muscles, and the carbonated baths, by paralyzing the peripheral vaso motor fibers. This method of treatment improves both heart and circulation.—Thomas E. Satterthwaite.

Relieving Disturbances of the Heart.—Exercise must be ensured in order to assist the processes of tissue change. In those unable to rise, massage must be employed along with passive movements of the limbs. The resistive exercises of Schott are of real importance. In those who are able to go about, graduated, active exercise is of the greatest importance, and a progressive increase may be safely recommended.—Geo. A. Gibson, F.R.C.P., Edinburgh.

The benefit of the Schott treatment in suitable cases is unquestioned. Cases of cardiac weakness and dilatation, whether from depression, general disease, or overstrain, are those that gain the most. Cases of approaching breakdown in middle life and early loss of compensation in valvular disease are also benefited—*Lancet,* Nov. 5, 1898.

Neurasthenia Cordis.—The main thing is the drill of both mind and body and giving tone to the heart by cold baths and exercise.—Whittaker.

Atheroma.—A therapeutic agency of much value in these cases is massage.—A. E. Sansom, F.R.C.P., London.

Arterio Sclerosis.—The muscles should be placed in a state of physiological activity by exercise or massage.—Sansom.

Stomach.—In chronic gastritis, erosions of the stomach and in hyperchlorhydria exercise is warmly recommended.—Max Einhorn.

In nervous anorexia, dyspepsia and gastralgia, due to hysteria and neurasthenia, massage may be given with benefit.—Einhorn.

Myasthenia gastrica, myasthenia intestinalis, bulimia, hyperchylia gastrica, gastrospasm, nervous vomiting, neurasthenia gastrica, gastroptosis with neurasthenia are diseases in which appropriate massage will be of value.—Wm. Van Valzah, J. D. Nisbet.

Dilatation of Stomach.—Reed reported three cases cured, exercise and massage being important factors in his treatment.

Intestines.—Gymnastic exercises, when they can be practised, are extraordinarily well adapted to stimulate and strengthen the abdominal as well as the intestinal muscles.—C. A. Ewald, Professor Medicine, University of Berlin.

Chronic Appendicitis.—Give careful massage to the iliac region.—B. Farquar Curtis.

Constipation.—Scientific massage gives excellent results in many cases.—Ewald.

Haemorrhoids.—Light gymnastics that antagonize hyperaemia and congestion.—Ewald.

Nervous diarrhoea.—Exercise and massage are useful.—Ewald.

Typhilitis and Perityphilitis.—Massage is of value in the chronic condition.—Dr. Hünerfauth, Homberg.

Pleurisy.—Exercises daily are a useful adjuvant.—Whitney.

Chronic Laryngitis.—In this and in sensory neuroses of the larynx, exercise is of much importance.—Bosworth.

Chorea.—Massage, passive, respiratory, and exercises of precision are useful adjuvants.—C. S. Feré, Paris.

Massage and passive exercises produce a reflex, calming effect upon the central nervous system, and quicker exchanges and more rapid neutralization of toxins take place in cases where the etiology shows infectious disease.—*Indian Med. Record.*

Massage is suited to the chronic stage.—Gowers.

Occupation Neuroses.—Writers' cramp, telegraphers' cramp, typewriters' cramp, etc. Movements differing from those which induce spasm are distinctly useful. Massage gives considerable relief and lessens tendency to spasm.—Gowers.

Wolff's plan of active, passive movements, and massage, and, when the spasmodic condition is notably diminished, to gradually begin the particular exercise of the occupation, is a method which has often been of great utility.—Feré.

Hysteria.—Massage and exercise exert a tonic influence. Massage and passive movements are of benefit in overcoming contractures.—Gowers.

Neurasthenia.—Physical exercise is of enormous value. Massage is grateful and helpful to women.—Dana.

The physical influence of rest and massage is often useful on account of the complete repose to the motor nervous system. —Gowers.

Insomnia.—Massage by drawing the blood to the surface of the body, thus tending to render the brain and cord anæmic, is often of great value.—Brown.

Locomotor Ataxia.—Gymnastics have a special value as a remedy for the ataxia. Frenkel's plan of exercises for the education of the co-ordinating centers, guarding against the patient's overdoing, is particularly to be recommended. Erb, Raymond, Hirschberg, Goldscheider, Dana and others follow the principles set forth by Frenkel in his method of exercise treatment and report cases of practical cures.—Möbius.

Frenkel quotes a case which had been bedridden for several years, walking, with no signs of ataxia, as a result of pursuing his method of exercising.

Massage is very useful in the treatment of the disturbances of sensibility, the anæsthesia and the paræsthesia.—Graham.

Massage should be given when rest is necessary.—Pepper.

Cerebral Exercise.—Frenkel recommends treating certain motor disturbances such as paralysis agitans, Sydenham's chorea, convulsive tic, and aphasia by subjecting the muscles affected to a process of re-education by means of a series of graduated systematic exercises.—*British Medical Journal.*

Hereditary Ataxia.—Massage should be employed.—Collins.

A certain benefit is attained at times by exercise treatment as in tabes.—Von Strümpfell.

Infantile Cerebral Palsies.—Oppose progress of deformity and contracture by massage.—Joseph Collins.

Where mental defect is not too great, much can be accomplished by muscular education. This, with thorough and oft-repeated massage, is of undoubted benefit.—Moore.

Infantile Spinal Paralysis.—Passive movements, from the very first; massage persistently to restore and strengthen weakened muscles.—Moore.

Acute Poliomyelitis Anterior.—Employ massage for the paralyzed muscles.—Bruns & Windehscheid, Jules Comby.

Asthma.—Good results have been obtained from deep breathing exercises and massage of the chest muscles.—Marcet and Metcalfe.

Emphysema.—Exercises will help in restoring mobility of the upper part of the chest and in restoring the lost elasticity of the lung.—Kingscote.

Progressive Muscular Atrophy.—The methodical use of muscular movements is likely to be followed by great improvement, especially where the disease had not begun in early childhood.—Weiner.

Haemorrhagic Apoplexy.—For the paralyzed muscles, massage and exercises, in their turn and place.—Dana.

Traumatic Neuroses.—The value of systematic and skillfully applied massage is so great that its proper administration more than counterbalances the breaking in upon the isolation of the patient of another person, in addition to the nurse, and of the extra expense involved. For to be able to give massage well is an art in itself, of which only a few of the graduates of the training schools for nurses are mistresses.—Pearce Bailey.

Maladies for which massage has been employed with success are numerous. The following are a few: Bell's palsy, lead palsy, neuralgias, sciatica, peripheral neuritis, anæsthesia, hyperæsthesia, etc.—J. Fletcher Little, Prof. Medicine, College of Surgeons, Ireland.

Spasmodic Neuroses.—Feré commends massage in the spasmodic conditions of the different nerves.

Torticollis.—Dr. Beyer reported a case of complete cure as a result of a nine months' treatment by massage.

Blepharspasm.—Abadie reports curing a case by means of massage.—*Gaz. d. Hospital,* Paris.

Peripheral Palsies.—Lloyd commends massage in the paralysis of the different individual nerves.

Tetany.—Two difficult cases were quickly cured by a course of energetic massage during chloroform narcosis.—Gowers.

Alcoholism.—Massage is a useful adjuvant where muscular exercise cannot be enjoyed.—Norman Kerr, F.L.S.

Morphine Habit.—There is nothing I know which will so effectually allay the craving for the drug and enables the patient to dispense with its use as massage.—Murrell.

Diseases of Women.—Pelvic massage is a rational therapeutic agent, and it is applicable for the relief of many conditions for which there is no other equally good remedy. In the pelvis, as in other regions, it quickens the circulation, prevents stasis in the lymph channels, furthers resorption and retrogressive metamorphosis, gives tone to the muscles, excites muscular activity and so improves the nutrition. Indications are the removal of inflammatory exudates, breaking up and stretching of adhesions, restoration of function to contracted or overstretched ligaments and the reposition of displaced organs under proper precautions.—E. C. Dudley, Prof. Gynecology, N. W. University.

Fractures.—Treated 115 fractures of the clavicle and upper extremity with success by massage without fixation. A scarf or sling which supports the limb and prevents excessive movements is all that is required. Movement of broken fragments one upon the other when not excessive is beneficial and assists formation of callus. Massage is given every day. By this pain and muscular contractions cease. Union is rapid with a useful limb.—Lucas Championierre.

Patellar Fractures.—The secondary or after treatment (massage and passive motion) I regard as absolutely essential to the attainment of the best results of the operative method of treatment, and its neglect, I am certain, is responsible for its comparative failures in the hands of some operators. —Charles Phelps.

Patellar fractures after operation and fixation by sutures. The light splint that is put on at beginning of the second week is taken off daily and massage and passive motion is given.—Irwin S. Hayes.

Sprains.—Rest, pressure, and massage for earlier stages; passive motion and use for later stages.—Moore.

Old Sprains.—After the anchylosis has been broken up, under anæsthesia, follow by persistent massage, passive motion, and moderate use.—Moore.

Anchylosis.—Massage is a very valuable aid in restoring these crippled joints to usefulness.—Moore.

Good results may be looked for when passive motions and massage is persevered in. —Tubby.

Injuries to Spine.—When convalescent, massage and gymnastics are suitable.—Bruns and Windsheid.

Scoliosis.—Exercises should be given to increase the strength of weaker muscles, and, to a lesser degree, the normal ones.—A. H. Tubby, F.R.C.S.

Use massage, corrective exercises, and suspension twice a day and continue for about six months.—M. R. Barker.

Kyphosis.—To correct the existing deformity the chief reliance must be placed upon gymnastic exercises.—Tubby.

Lordosis.—Use massage and exercises in the treatment to strengthen the weakened muscles.—Tubby.

Chronic Hyperaemia.—Massage treatment is of benefit wherever applicable, because it breaks down exudates and diffuses it over a wider and oftener healthier area, for its absorption; empties the part of the lymph and venous blood and brings more arterial blood to the tissues.—Nancrede.

Tonsils.—Massage will reduce enlarged tonsils. It empties the lymphatic spaces.—Kantorwiez.

Eye Diseases.—Suegiurew reported favorable results from massage in maculæ, keratitis parenchymatosa, follicular and phlyctenular conjunctivitis, hypopyon keratitis, iridocyclitis, traumatic cataract and absolute glaucoma. Katsaurow writes that massage reduced intraocular tension even in glaucomatous eyes, and produced especially favorable results in episcleritis.

Pagenstecher recommended massage for corneal opacities, spring catarrh and for scleritis. Darier uses massage in hypertropia, myopia and in glaucoma.

Cutaneous Affections..—Prurigo is treated successfully by massage by Dr. Hatschek, of Vienna.

Acne.—Dr. Pospelow, of Moscow, uses massage successfully.

Ulcers.—Dr. Bekevievitch reports cures in four-fifths of 264 cases of various ulcers through massage treatment.

Shoemaker found massage useful in psoriasis, scrofuladerma, trophic disturbances and chronic eczema by increasing oxidation, stimulating the absorbents, and through its effect upon the digestive system.

Old Age.—Finally, in order to prevent the too rapid losses which result from an exaggerated depression of vital activity, we ought to class muscular activity among the measures adapted to maintaining the greatest possible resistance in the aged. Movements of all the muscles are indispensable in order to facilitate nutritive exchanges within the tissues and to bring about a more complete oxidation, thus aiding in the combustion of the products of nutrition. We ought, therefore, to insist upon the utility of muscular exercise despite opposition.—J. Boy Teissier.

Infancy and Childhood.—Massage is indicated in anæmia, tedious convalescence, neuroses, contractures, etc.—Jacobi.

Convalescence.—Celsus advised masseering of the whole body when an invalid required his system to be replenished. Whether or not the period of convalescence was thought of by Celsus when giving the advice, it is nevertheless peculiarly applicable to that period. Massage is resorted to by surgeons in cases of fracture in the restoring of the tissues to their normal condition of usefulness, and that effect is secured in one-half of the time ordinarily required without the use of massage. The same would be found true in the general debility of the convalescent period. The massage facilitating and improving the nutritive, eliminative, and circulatory exchanges so that the system would be restored to a normal condition in much less time than would otherwise be possible. At the same time the increase of the physical tone would lessen the liability to sequelæ or relapses. This, therefore, would make it of value in a wide range of diseases.

Prophylaxis.—Asclepiades affirmed that diet, masseering, and exercises should keep a body from disease. While, in general, the physician is not concerning himself with massage or exercises in the matter of preventing disease, still there are cases that do come up in family or individual practice for which he is required to prescribe prophylactic treatment as, for example, in debilitated subjects to avoid impending disease or illness. The therapeutic effect of massage or exercises, as these cases might require, is never disappointing.

By improving the general vitality and tone of the system, massage treatment would be of value in preparing cases to stand the shock of operations.

229 West Fifty-second Street.

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THE EFFICACY OF ANTISEPTICS IN THE TREATMENT OF CERTAIN CONDITIONS WITH SPECIAL REFERENCE TO THE MERIT OF GLYCO-THYMOLINE.

By C. H. Powell, A.M., M.D.,

Prof. Principles of Medicine and Clinical Medicine, Barnes Medical College, St. Louis, Mo.

Ever since the introduction of Lord Lister's principles to the medical profession physicians have studiously and patiently investigated the many antiseptic agents introduced to their notice from time to time by different pharmaceutical establishments of recognized repute. Some of these preparations have not stood the test, and as a result "have fallen by the wayside." Others in proportion to their merit are filling an appropriate place in the prescription book.

Of these there are but a very few indeed, and at the head of them all my experience induces me to place Glyco-Thymoline. This remedy, aside from possessing properties of a most positive nature, is handled by the Kress & Owen Company in a most thorough ethical manner. The medical press is selected by the Kress & Owen Company to the exclusion of all other mediums in order to keep the Glyco-Thymoline conspicuously before the profession. Not only that, but as a further evidence of the sincerity of the firm in believing their product all that is claimed, a liberal sample is sent any physician who may desire to test Glyco-Thymoline. Without going further into the merits of Glyco-Thymoline as an antiseptic possessing decided therapeutic properties, I desire to report a few cases wherein by careful and persistent use this alkaline, alterative solution has given me most excellent results.

Case I.—Mrs. M. W., widowed, aged 42, consulted me for nasal difficulty of several months' standing. An examination of the nasal fossæ revealed several very interesting conditions. There were grouped together possibly seven or eight foci of ulceration; some of these spots ran together, presenting more or less of a serpiginous ulceration. Each ulcer was covered with a dirty gray ash-colored exudate which adhered firmly to the underlying schneiderian membrane. I first applied on absorbent cotton, a fifty-per-cent. solution of peroxide of hydrogen, and having removed the purulent secretion, sprayed the nose thoroughly with a twenty-five-per-cent. solution of Glyco-Thymoline in distilled water. I instructed the patient to report the day following for a renewal of the treatment, and to my surprise found a healthy looking surface in place of a suppurating wound. I repeated the spraying of the nasal fossæ some three or four times more, and complete healing took place, the nose returning to its normal condition within a week's time from the first application.

Case II.—Mrs. F. K., married, aged 30, was brought to me for a disturbance of the throat, which, owing to the fact of a member of the lady's family having recently died of tubercular disease, was a source of much worry and mental anxiety to both the lady and her husband. The tonsils were somewhat congested, and showed upon their surfaces several little points of deposit dipping down into the tonsilar crypts. I immediately sprayed the tonsils with a full strength solution of Glyco-Thymoline, and at the same time gave the lady a six-ounce bottle fifty-per-cent. strength to use as a gargle. In three days' time she called to get some more of the solution, which, she stated, was very prompt in relieving her of her troublesome tickling sensation. Upon inspection I found the throat entirely cleansed of all exudates and the hyperæmic appearance of the tonsils was entirely removed, the gland assuming an almost normal hue. I again sprayed the tonsils with a full-strength Glyco-Thymoline, and renewed the bottle for her, or rather requested her to have the bottle refilled at the drug store. She called again to see me in a few days and stated she was entirely relieved of all unpleasant symptoms, and did not think further treatment was necessary. I accordingly dismissed her as cured.

* * *

Trained Nurse

STORY OF THE FIRST STOMACH.*

By William Boeschf.

At some early time, in a manner that we do not understand clearly to-day despite all our study, certain single, living cell beings appeared in the world.

These creatures, in consisting of only one cell each, resembled the bacteria, amœbas and similar infusoria of to-day in this characteristic.

Each of these cell beings carried out all the undertakings of simple life by itself. It moved, multiplied through primitive fissure, betrayed certain sensations and took nourishment.

The methods of this nourishment were different. In one case inorganic mineral matter was taken in as we see it done to-day among the plants; in the other case, organic stuffs, already dissolved, were taken in the shape of other cell beings, as we see feeding done to-day among the true animals. Both methods are to be seen to-day among the bacteria.

Let us remain with those single cells that already had reached the point of nourishing themselves as animals, by conquering other animals and weaker single cells and devouring them.

This process of devouring and the entire process of nutrition in such a simple being proceeded without any organ—entirely without stomach or intestine. Just as no single cell in our stomachs has a stomach of its own, so did that single cell of the dim past lack a stomach.

It surrounded its food with its whole jelly-like cell body, took it in whole and digested it whole, something as a drop of water will swallow a tiny bit of red color and become permeated with it till it is red through and through. We can still see this primitive mode of feeding in living single cells of our time.

Then there came the first great advance. The primordial beings, hitherto strictly solitary, came together here and there and formed themselves into the very simplest forms of communities.

Let us assume that about a hundred of such cell individuals formed a clump. Each of them previously had moved itself forward in the water by lengthening its soft body into a pointed thin thread, whose flimmering motions whirled the tiny thing ahead.

The newly formed clump of communistic cell creatures also needed such motion. So, as the cells combined, each protruded its little filament and freely, and before long the first mutual act of the clump was to achieve a certain measure of motion by which all the filaments were swung in even tempo. Thus, at last the whole clump began to move in a forward direction.

It was a simple and natural result of this mutual act for the clump to acquire the shape of a bladder. Each single cell had to remain in touch with the outer world for its own preservation. Therefore, all of them crowded to the surface of the sphere; the inner portion remained empty and hollow, and the bladder, or hollow sphere, was created.

A cell community of this kind, forming a hollow sphere and moving merrily in the water through the rhythmic motion of each single cell, is not a hypothetical thing, invented for the purpose of illustration. Such communities live to-day in fresh as well as salt waters.

The single-cell individuals of this little, fast-moving, social bladder did not cling so hard to its outer edge merely for the sake of motion. The need for nourishment made it mandatory.

Despite the new and close communion, each cell still fed for itself. Each had to fish for its own nourishment and digest it for itself. If a cell had fallen out of the outer circle into the inner part of the sphere, it would have died miserably from hunger.

And now we begin to see how the food problem reaped the greatest benefit from this social community.

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It lay not only in the fact that the sphere could reach new feeding places more quickly, propelled as it was by united powers. The chief gain lay in a spontaneous division of labor.

Before that, whenever a single-cell arch-being obtained a choice bit of food, it would become torpid for a while. It drew its filament end in and lay still.

In the new community, too, whenever a single-cell ate, it would fall into this digestive torpor. But now it was fast in the mass that moved as a whole. Even if it was inactive itself, the sphere dragged it along.

So, even during its digestive sleep, it rolled toward new food supply, avoided dangers, in brief, enjoyed all the advantages of motion.

In exchange, the torpor single-cell paid a certain tribute to the contiguous cells in return for their work. Through the close crowding of the soft cell bodies it became inevitable that some of the digested juices from the fed cell should flow into the neighboring cells.

Without its being willed by any of them, there began a compulsory co-operation. If four cells moved another cell around while it was torpid, they got some of the food absorbed by it in return.

For a time this, the most simple of all forms of mutual labor, took place, now here, now there, wherever and whenever a cell happened to seize food. But gradually this co-operation became practically inevitable.

The bladder, or sphere, bored its way through the water in a straight line—one pole in front, one pole behind—to meet the floating food. Now, what happened? The cells in the forward end of the sphere obtained the most food.

So in this part of the sphere there developed a certain number of cells that fed, digested and became torpid continuously, until at last they did nothing else, ceasing entirely to furnish motive power to the ball. But to balance this, a constant stream of juices flowed from these overfed cells into the rest of the sphere. The division of labor into feeding cells and motor cells began to develop according to rule.

So one day there appeared a sphere whose forward pole consisted entirely of feeding cells pure and simple, while the opposite end consisted of motor cells alone.

With this change, the necessity became even greater that the forward cells should eat enough to supply all the others. But their power was limited by their number, and there was no room for more at the forward pole. What happened?

Suppose that it were desired to crowd an immense number of persons together on one of the poles of this earth to catch something falling from the sky. How could the greatest number be accommodated with room?

Simply by digging a deep pit whose bottom and sides could be lined with people. This is just what the cells did.

First they formed a shallow pit. At last they formed a hollow toward the inner part of the sphere—that is, the sphere collapsed inward, like a rubber ball from which the air has been squeezed. It was a cup, wide open in front.

The outer surface of this cup consisted of the motor cells. The inner surface consisted of feeding cells. Now, when the cup glided forward, the food that met it swam straight into the open cup. And, since the entire inner side of that cup consisted of feeding cells, the food went directly to the right place.

And this adjustment of cells brought other advantages with it. The feeding and digesting cells were protected much better now against enemies and accidents than they had been when they were on the exposed surface of a sphere. And the connection between them and the motor cells was immeasurably better. Their supply of nourishment could be given to them constantly.

Now, suppose a person who knows nothing at all of cells and cell communities were to capture such a cup-formed mass. What sort of animal would he imagine it to be?

It would be clear to him that he had before him a very simply constructed creature, which possesses only two organs. On the outside is a skin, clothed, after the manner of many animals, with fine points—hairs.

The animal swims in a straight line, propelled by the flimmering impulse of these hairs.

Inside the animal has a stomach, with which it eats and digests. This combination of only two organs—stomach and skin—gives the thing a primitive appearance.

One perceives that it stands low in the scale of animal development. But, at any rate, it has organs—most important, a stomach. So the beholder would say:

"Yes; it is a real animal."

And he would be right. But we, knowing of cell growth, have learned how the animal became an animal. We have learned how it achieved a stomach.

What I have explained simply and without scientific terms is the ground principle of the famous theory of the gastræa.

It was first formulated sharply and decisively by Ernest Haeckel. Springing from the Greek word "gaster" (the stomach), it describes that cup-shaped animal form, whose genesis the reader has beheld. The arch-stomach animal, we might call it in plain English.

Haeckel furnished proof that such a creature, with primitive division of labor, into skin and stomach, must indeed have been the arch and root form of the whole higher animal world in the gray days of world evolution.

The formation of primitive beings into cell communities, cell clumps or cell bladders, occurred repeatedly in the beginning of life. Such cell clumps then developed in two wholly different directions—some in the direction of the many-celled true plant, the others in the direction of the many-celled true animal.

The plant shows no stomach in the sense of the stomach of the animal. Even though some higher plants—the so-called insectivorous plants—produce juices like the gastric juices and digest captured insects, the process has nothing in commom with genuine stomach and intestinal formation.

But in all animals—with the exception of only a very few degenerated parasites—the stomach is the most characteristic organ and one that is developed even where the nervous system still is lacking.

So the beginning of the stomach, the appearance in the world of the arch-stomach animal, or gastræa, is the great vital moment in the life history of the higher animals.

In the family tree of these higher animals, as Haeckel has worked it out, the gastræa forms the point of the departure for all ramifications, all upward development. Two main branches go out from it in the beginning, working out by two different methods the mode of life of the cell cup.

In one branch the living cup gave up its swimming life and fastened itself to the ocean bottom with its lower, closed side, thus becoming the ancestor of the animal sponges and the polyps. In the other branch it continued to swim or crawl straight ahead and thus gradually extend itself laterally.

This led finally to a symmetrical development of both ends. An opening appeared at the end opposite the cup or mouth.

With that opening the cup-creature became a tube. The intestine had formed. The creature was a worm.

The worm, in turn, became the primordial ancestor of the highest animals—the soft creatures, such as mollusks; the prickle skins, such as sea stars; the articulated animals, such as crabs, spiders, insects; and the vertebrates.

And the vertebrate, that began with the fish, ended in the mammal with man.

The true, primitive gastræa has not been discovered yet. But there are many living forms that stand so near the gastræa that Haeckel himself has felt justified in naming them gastradæs, and in a recent work it has been possible to publish a plate with no less than sixteen figures of such creatures.

Our fresh water polyp belongs to this group. It exists to-day practically with nothing except skin and stomach, although it has advanced to the stationary form of life. Then there are certain low sponge-like forms of animal.

Jean Paul once said very admirably that

the poet begins where a man discovers that everything that is old and of every-day is really wonderful. In this sense every thinking person should be a poet.

I hope that the reader who has made this little expedition into the mystery of life will be conscious that there is nothing trivial in the light of knowledge. The stomach, in the gastræa theory, becomes one of the wonders of the wonderland of life.

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TREATMENT OF NURSES IN THE PHILIPPINES.

The quarters provided for the nurses in Manila, Philippine Islands, by the Government are palatial, the house having formerly been the home of a Spanish admiral, and the building one of the handsomest in the island. It is a structure built in Spanish and Moorish style of architecture, set in a garden of palms, mango and banana-trees with blooming flowers on all sides. The grounds slope down in the rear to the river's bank, and the nurses have the privilege of using a private stone dock when they want a sail on the Pasig at sunset, or on a moonlight night. The doors of the house are very large, some of them made of plate glass, a great extravagance in Manila, where glass is so very expensive and so hard to procure, that many windows are made of oyster shells. There are no carpets on the floors, but they are highly polished, the native boys daily skating over them with coarse cloths dipped in petroleum wrapped round their bare feet. Walls are polished with banana leaves and the same fluid. The knobs and hinges throughout the house are of silver, and there is a roof garden from which a beautiful view is obtainable. Who wouldn't be a government nurse in Manila?

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"THAT TRIMMED NURSE."

A visiting nurse had been on her rounds since early morning. Three consumptives, four new babies, three typhoids and a pneumonia case had received her care. It was six o'clock when her work was done. As she was about to leave the last case a neighbor came in and remonstrated with her for going. "You do be paid by the city," she said; "you have no right to be going at six. Ain't ye's one of them trimmed nurses that can go without slapin, and 'atin'?"

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THE CONTROL OF MOUTH BREATHING AT NIGHT.

Stewart W. Tufts (*Amer. Medicine,* Jan. 31) believes that the most simple method for preventing mouth-breathing that can be devised is to stick a piece of silk isinglass court plaster, about three-eighths inches by one and one-fourth inches across the closed lips. It can be very quickly removed, and does not irritate the lips. The writer finds that at least ninety per cent. of his patients with acute and chronic diseases of the respiratory tract are mouth breathers at night. A nose, to be normal, must be used constantly. If it is not so used, the mucous membrane congests, and gradually thickens from hypernutrition. Air inspired through the nose receives from 20° to 40° of heat, and becomes at least two-thirds saturated with moisture, and thus the nose becomes a most effective germ filter. The mouth has none of these functions, and when it is used for breathing, the lungs must receive many germs and suffer injury from the unmodified air. When the immense mortality from lung diseases is considered, the importance of this subject can better be realized. Tufts finds his general results better in the treatment of respiratory diseases since the use of this method.

LAUGHS AND LAUGHTER.

Speaking of laughs, the most heart-rending laugh is the laugh of the summer girl that shook you, and is gadding around with some other fellow.

The most demoralizing laugh, to the married man, is the laugh of the family doctor when he comes up and slaps the married man on the back and shouts, "It's twins, old man!"

The most grotesque laugh is that of the fat woman, at a picnic, when she's got a pickle in her mouth.

The hollowest laugh is the laugh a man laughs when he sees the necktie his wife has bought him.

The cutest, sweetest little laugh is the laugh of your best girl. It generally costs a couple of theatre tickets and a dollar or two hack hire, though.

The most dangerous laugh is the laugh of a man when he's getting shaved at the barber shop.

The most untimely laugh is that of the boy who is making off in the darkness with the doped watermelon.

The most hilarious laugh is the laugh of the fellow who scoops in the stakes on a jack-high bluff.

One of the most comical laughs is that of a person who's got the hives, where the mouth sticks way out to one side and the nose acts as though it was mad about it.

The most enjoyable laugh is the laugh that's on some one else.

MUSIC IN THE SCHOOLS.

The children should sing our national songs as an adjunct to their history lessons, and each of these songs should be made pregnant with meaning by having its story told before a note is sung—or listened to! What a wealth of history there would be in connection with "Yankee Doodle," for example. Not of the origin of the melody, for that is unknown, but of the Colonial War and of the New England troops marching into Albany and being lampooned to this tune by Dr. Shuckburgh, the English surgeon; of the British bands playing it on Sunday mornings in Boston, to irritate the church-going New Englanders; of the ribald words sung to it by the English against John Hancock during the siege of Boston; of its sounding forth during Lord Percy's hurried march toward Lexington to relieve Major Pitcairn, thus beginning the Revolution; of the American bands playing it at Yorktown, at the surrender of Lord Cornwallis, thus ending it. The mutations of "The Star Spangled Banner" from the English drinking song to "Adams and Liberty," to praise of Jefferson and to its present shape might be explained. The rollicking naval songs of the War of 1812 might find their place here, and many another bit of historical music. This, however, deals rather with repertoire than with system, yet it deserves momentary notice as the fittest beginning of an American music course.—Louis C. Elson, in *The Atlantic.*

"THE LAW AND THE DOCTOR."

Amid the multiplicity of his daily duties, the physician has but scant time to cultivate more than a passing acquaintance with the collateral branches of his profession; the average practitioner, therefore, knows but little of the legal aspect of his relations to the body politic, of his rights and privileges, or his liabilities and responsibilities to his patients and the community at large. While pursuing "the even tenor" of his professional way, the doctor may suddenly be confronted with a summons and complaint in an action for malpractice, or may be called as an expert witness in a similar suit against a colleague. While it is not our intention to urge the physician to become his own lawyer, we believe that he should acquaint himself with the fundamental principles of medical jurisprudence so that he may be reasonably well prepared to defend his own or his brother physician's rights and privileges on the witness-stand. With a view of placing such information at the immediate disposal of the doctor, the Arlington Chemical Co. has arranged to issue, under the title "The Law and the Doctor," two 48-page booklets which shall present in condensed form and succinct style an epitome of the essentially important features of (1)"The Civil Liability of the Physician for Malpractice" and (2) "The Physician as a Witness." These exceedingly practical monographs have been expressly prepared by an eminent member of the New York Bar, who is well recognized by the legal profession as an expert in this special branch of practice. The first of these reference text manuals is now ready for distribution, and after a reasonable interval will be followed by the second monograph.

Copies may be had by applying to the above company.

⁂

SAJOUS ON THE RESPIRATION.

1. The adrenals secrete a chromogen—a colloid, hyalin fluid—which leaves the organs through the suprarenal veins, and is mixed with the plasma of the venous blood in the inferior vena cava.

2. When the venous blood reaches the pulmonary alveoli, the marked affinity of the adrenalized plasma for oxygen causes it to absorb this gas from the alveolar air.

3. The carbonic dioxid in the blood is thus forcibly replaced by oxygen, and expelled with corresponding vigor.

4. The red corpuscles, after this operation, bathe in an oxygen-laden medium, and their hemoglobin becomes reconverted into oxyhemoglobin. Furthermore:

1. When the secretion of the adrenals reaches the alveoli, it absorbs oxygen from the air and forms with the latter a compound, or "oxidizing substance."

2. A part of this oxidizing substance is absorbed by the hemoglobin of the corpuscles and the balance remains in the blood-plasma.

3. This oxidizing substance is the reagent to which the oxidation processes that occur in the blood-stream are due.

⁂

GEN. MILES'S RETORT COURTEOUS.

At a certain dinner table with Gen. Miles the other night was a distinguished Washington surgeon who listened with a certain air of superiority to some of the soldier's reminiscences of various experiences during the Civil War.

"And how do you feel, General," he finally asked with just a touch of sarcasm, "after you've professionally killed a man?"

"Oh," replied Gen. Miles, "I dare say I don't mind doing that any more than you do."

⁂

SOUTHERN EDITOR IN LUCK.

We have been at work on a preparation that we hope will turn out all right. It has been a dull time in a dry town, and we have had to become an inventor to keep from going insane. We have invented a combination salad dressing and hair tonic which lays over anything that ever came down the pike. It will cure baldness, and it's a delicious dressing for tomatoes, lettuce and cold meats. Besides that, it is a good shoe polish and will remove grease spots from old clothes, and is the best tooth wash we have ever seen. Our fortune air made.—*Hardeman (Tenn.) Free Press.*

ULTIMA THULE OF PANTS.

W. D. Nesbit, in *Baltimore American.*

[A London tailor says we have reached finality in the matter of trousers; that the trousers of to-day will be the trousers of a million years hence.]

The world goes on upbuilding, with frequent shift and change;
What was a verdant valley is now a mountain range,
And yet the mighty mountains by stress of flood and gale
May in the distant future become another vale.
But here's where art and nature can see no further chance—
We've reached the farthest limit—the pinnacle of pants.

The fig leaf and the rushes, the woven garb of grass
Were once the proper caper, but also had to pass;
The toga of the forum; the greaves of brass and steel
Were long ago rejected, and there was no appeal;
And so we've climbed the ladder and from the top we glance,
And proudly tell our hearers: "There'll be no change in pants."

In art as well as letters there still is much to do;
The chisel of the sculptor not yet has graven true;
The history of music shows that the songs unsung
Will be the sweetest ballads from inspiration wrung.
In ecstasy we caper, in proper pride we prance—
At last one thing is finished—they can't improve on pants!

* *

LAZINESS.

A traveler who visited the Sandwich Islands claims to have discovered among the natives there the "laziest people on earth." He writes that during his visit to one of the islands none of the inhabitants did any work to speak of. They squatted, chatted, laughed, played, and acted in other ways more like a lot of little folks on a summer evening than as the responsible heads of households. Nature gives them enough to eat without any considerable labor, and they seem contented with what they thus receive. Of course at Honolulu and other points work is done, but altogether the people of the islands are as lazy as they are happy.

HYDROGEN PEROXID AS A DEPILATORY.

According to Dr. P. Gallois, hydrogen peroxid affords a simple, harmless and painless means of removing superfluous hair. A piece of cotton is wet with the solution, and applied to the region to be treated and left in place for several minutes. The procedure is repeated daily until the desired result is obtained. The hair gets lighter and lighter in color and finally disappears. Of course the hair follicles are not destroyed, so that the hair will grow again, necessitating another course of treatment.

* *

BURNS.

A mixture of castor oil with the white of egg has been recommended for burns. It allays the pain more quickly and causes the wound to heal more rapidly than any other application. The eggs are broken and emptied into a bowl, and the castor oil gradually and slowly poured in while the eggs are beaten. Enough oil is added to make a thick, creamy paste, which is applied to the burn with a feather. The applications are repeated often enough to prevent their becoming dry or sticky. It is best to abstain from any dressings, leaving the surface uncovered.

* *

REVENGE IS SWEET.

Doctor's Wife.: Aren't you going to take your instrument case?

Doctor: No; the patient is a plumber. I'm going to send back for the instruments and charge him for the time.—*Medical and Drug Advertiser.*

* *

Book Reviews.

PLAIN HINTS TO BUSY MOTHERS. By Marianna Wheeler, Superintendent of the Babies' Hospital. New York, E. B. Treat & Company, 1903.

This little volume lays no claim to novelty, originality or sensation. Nevertheless it is a terse and pertinent restatement of practical facts which cannot be too plainly or too frequently reiterated, if we are to judge by the unhealthy appearance and fretful dispositions so frequently met with in baby carts as they are trundled through the parks and along noisy streets in the glaring sun of hot summer days. One may be inclined to criticise in the matter of a few details, but on the whole our author's advice is sensible and seasonable. For example, meat broths are a poor substitute for mother's milk, as is abundantly proven by the frequently occurring cases of actual scurvy among artificially fed babies. The list of "Don'ts" with which the volume closes is alone worth many times the price of the manual.

FASTING, HYDROPATHY, EXERCISE. By Bernarr Macfadden and Felix Oswald, A.M., M.D. New York, the Physical Culture Publishing Co.

There is in this volume a good deal of sound sense, tinctured with some dashes of radical exaggeration.

But the extremists have their mission, and this little book has its mission. Those who apply the test of intelligent experience and rational observation to its enthusiastic overstatements will be profited by reading the book. It will undoubtedly fail to usher in the dietetic, hydropathic and kinesipathic millennium, but it will nudge a good many who need to be nudged before they will depart from their chronic routine of physical sinning.

PHYSICAL CULTURE COOK BOOK. By Bernarr Macfadden and Mary Richardson. New York, the Physical Culture Publishing Company.

This cook book is a consistent and fitting supplement to the work on Fasting, Hydropathy and Exercise.

It is radical without being quite so uncompromisingly exclusive as many of the "reform" cook books.

The housewife who follows its teachings will unquestionably enhance the health and general physical condition of her household, and perhaps there is no missionary work or gospel more needed in this age of gormandizing and quick lunches.

THE VERBALIST. A manual devoted to Brief Discussions of the Right and the Wrong Use of Words, and to some other Matters of Interest to those who would Speak and Write with Propriety. By Alfred Ayers, author of "The Orthoepist," "The Mentor," "Acting and Actors," etc. New York, Boston and Chicago, D. Appleton & Co.

While this little manual is not a discourse on diet or disease, and has no odor of the laboratory or breath from the clinic, medical men who talk in their societies or write to their favorite journals could hardly find a more useful or practical aid.

This volume is a thorough revision of the one issued some years since by the same author. Its size is nearly doubled, and the author aptly concludes his preface with the statement:

"If the book now is not so good as it should be, then—it should have had another author."

Johnson says, "We remain shackled by timidity till we have learned to speak with propriety," and Swift insisted that "As a man is known by his company, so a man's company may be known by his manner of expressing himself."

If there is a class of professional men who, more than those of any other, are constantly guilty of inaccuracies of speech and pen it certainly is men who sign M.D. after their names. They say *ability* when they mean *capacity, almost* when they mean *nearly, alone* for *only,* and so on through the entire alphabet.

This little manual, as modest as it is meritorious, teaches how to use nouns, pronouns, verbs, adverbs and adjectives in their proper places, and how to avoid the thousand and one examples, so common, of the misuse of all these elements of speech.

We repeat that writing and speaking doctors—and those who neither write nor speak are seldom heard from!—need the apt admonitions so compactly arranged in this little 18mo volume which should always be kept within reach of the writing table. Its cost—to put it in cold-blooded commercial parlance—is certainly less than one-tenth of one per cent. of its literary value.

LESSONS IN DISINFECTION AND STERILIZATION. *An Elementary Course of Bacteriology, together with a Scheme of Actual Experiments Illustrating the Subject Matter.* By. F. W. Andrews, M.A., M.D., F.R.C.P., Lond., etc. London, J. & A. Churchill; Philadelphia, P. Blakiston's Son & Co., 1903.

Here is a little handbook for which we have looked expectantly for years and mourned because we found it not. By its appearance the winter of our discontent is at least headed toward a summer that ought to be satisfactory if not quite glorious.

There are plenty of works on Bacteriology before the profession, and we are not going to fling any invidious criticisms as to their being too ponderous, too profound, too vague, technical or discursive, and all that, but we do not hesitate to say that there is nothing yet published in English to take the place of this volume. The author tells its story in a single sentence of his preface:

"I have endeavored to keep it within a small compass by excluding all that does not immediately bear upon this one subject."

When every branch of medical science is treated from the same standpoint there will be a chance for one of Aunt Chloe's housecleanings in every doctor's library, and the reading physician will realize the lifting of one of his most irksome and eye-straining burdens.

Dr. Andrews begins by asserting that the learned professor who introduced his treatise on Bacteriology with the epigrammatic flourish that "The infinitely little are the masters of the world," is more brilliant than accurate, since "man is gradually becoming master of the infinitely little." In a little more than 200 12mo pages he thoroughly establishes his position. Every practising physician and every man or woman who ever does anything in the line of nursing or of looking after the sanitation of the home, or of public or private institutions, should procure and master this thoroughly practical little volume.

☞ NOTE: The Department of *Notes and Queries* has been unavoidably crowded out of this issue of the GAZETTE.

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THE
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THE TUBERCLE BACILLUS ITSELF.*

By Charles H. Burr, M.D.

Attending Surgeon, Ear, Nose and Throat, Harlem Hospital Dispensary; Attending Surgeon, Eye and Ear, Northern Dispensary; Assistant Surgeon, Manhattan Eye and Ear Hospital.

Madam Chairman and Ladies:

I accepted the invitation of your secretary to address you with some diffidence, fearing that the ground had been so fully covered by the eminent medical gentlemen who have preceded me that little would remain for me to say. Since, however, they have discussed the subject of tuberculosis in a general way, dwelling on its ravages, the imperative need for energetic action to combat it, and the benefits to be derived from the Stony Wold Sanatorium, it occurred to me that it might not be unprofitable to spend a few minutes in considering the Tubercle Bacillus itself and its characteristics, with relation to the work in which you are interested. "Consumption," or phthisis, is a general name for a wasting disease—"tuberculosis," when it is caused by the presence of the tubercle bacilli; and it was only about twenty years ago that Dr. Koch, of Berlin, marked off an epoch in medicine by discovering these germs, with methods for their cultivation for study, for purposes of diagnosis, and, as he hoped and all the scientific world hoped, too, a specific for their destruction.

Every remedy under the sun has been tried to cure this disease, every drug in the pharmacopœia, stuffing and starving, "blue glass," ablation or removal of the apex of the lung—the X-ray—Koch's tuberculin, change of climate, and so on. Each vaunted remedy in turn adding one more to the long list of failures. As you will see under the microscope, the bacilli are very minute, rod-shaped bodies (usually, for the sake of identification, being stained red), and when you consider that the magnifying power used is in the ratio of one to one million, it is evident that it is as impossible to conceive of their actual size as it is to realize that of the distant planet which we see only as a tiny spark of light in the heavens, but which the astronomer tells us is many times larger than our earth or the sun. When we consider how insignificant in size are the bacilli (and that's the only thing insignificant about them), and that, arrayed in deadly hostility against them, the world over, are the physicians, the laboratories, congresses of experts, hospitals, homes, boards of health, quarantines, the medical press, your own Auxiliary No. 14, and kindred societies, doesn't it almost seem like a naval officer fighting, say, some fly that has disturbed his siesta, with broadsides from his thirteen-inch guns? Not so! The bacillus is a foeman worthy of your steel, and not a few scientists have paid with their lives for their share in the fight. The tubercle bacillus in common with many simple organisms of similar kind is on the borderland between the animal and vegetable kingdoms, but belongs undoubtedly to the latter. Among its characteristics its power of rapid multiplication is very wonderful, although this one is slow in comparison with others; each rod dividing into two, and each of them into two again, and so on and on, in a mathematical rate of progression that I will not undertake to name.

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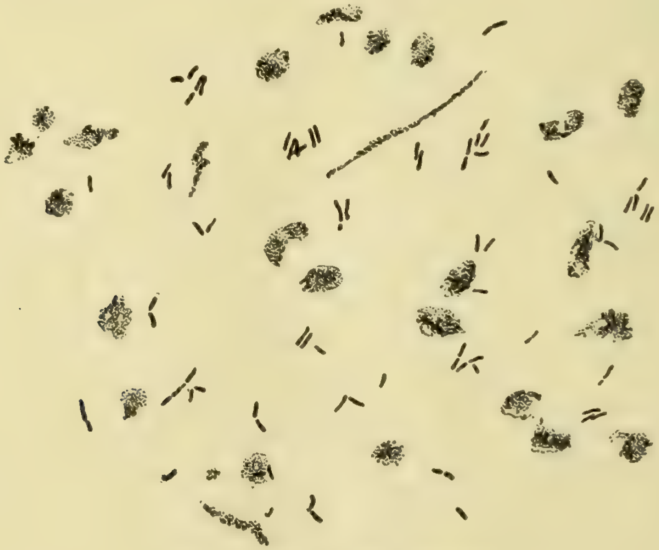
* Read before the Ladies of Auxiliary, No. 14, Stony Wold Sanatorium.

On a favorable soil one well regulated bacillus will increase to millions in twenty-four hours. The bacillus thrives in warmth and moisture, and like other denizens of New York "whose deeds are evil," it loves darkness and abhors the sunshine, which is very fatal to it. Its growth is retarded by cold, or it is actually killed if long enough subjected to it, and this suggests a pleasing thought, a new remedy for stamping out tuberculosis, namely, catch all these bacteria and confine them in a so-called "steam-heated" New York apartment house, and their doom will be sealed. I think, however, I will not bring this idea before the Academy of Medicine! Another characteristic may be noted—the tubercle bacillus is a tough customer, not only to tackle by ordinary means, but in regard to its resistance, for long periods, to even very intense cold. This germ has no power of motion the same as many others have.

One more marked characteristic—that of a certain bad man up in Connecticut, on the occasion of whose death there was great curiosity among the neighbors to know what a certain old lady would say for him. She was famous for her kindly little eulogies in these cases, even when there was only a very slender foundation on which to base them, and in this case there was absolutely none at all. She duly attended the funeral, and gazed long on the face of the deceased, while all the neighbors waited anxiously for her pronouncement. Finally, she relieved the strain by saying, "He was a wonderful man for holding on to a thing," and this characteristic of *tenacity* the bacillus has in a very marked degree. It is manifested in two ways: first, by the tenacity with which it holds on to its unfortunate victims, and, second, by its tenacity in first resisting and then retaining the stains by which we identify it in the laboratory. Specimens of all the germs are artificially stained, the better to be seen under the microscope. As you will observe in the illustration I submit, the tubercle bacilli are stained red, the rest of the cells blue. When the red stain is first applied all the cells readily take it up except these bacilli, and it is found necessary to apply heat, nearly to boiling point, to



TUBERCLE BACILLI GREATLY MAGNIFIED.

make them absorb this color. After this, a bleaching solution being applied, while everything else obediently gives up its red color, the tubercle bacilli tenaciously retain the red stain. A blue stain is then applied, and thus we have the tubercle bacilli red, everything else blue, and this behavior in the presence of stains is a diagnostic test of this species of bacteria.

One day the poet and scientist, Oliver Wendell Holmes, my old professor in anatomy, was about to pass a microscope around the class, and it took him a long time to get it ready. Finally he said, "Gentlemen, why do you suppose I am taking all this time to fix this slide? It is because there is a little speck of dirt on it, and I know that if I should pass it around without first removing that atom of dirt, such is the *inherent malignity of human nature,* you would all waste your time looking at that speck of dirt and would fail to see the specimen at all." So in case, unhappily, any one here is afflicted with this same "inherent malignancy," I will ask you to look at the red rodlike bodies, the tubercle bacilli, and not at the blue cells.

It might be asked, "Why were these bacteria ever created?" And that is as hard to answer as the old conundrum, "Why were snakes created?" We can not answer for these terrible tubercle bacilli; but it is a fact that, but for their relatives among other forms of bacteria, whose mission is to break up and destroy dead organic matter, the earth would become uninhabitable in a very short time.

Is there any antidote, any specific for tuberculosis? Hardly. Koch's tuberculin, from which so much was expected, is mostly used as a diagnostic test for tubercular disease in cattle, also in the very early stages of tuberculosis in human beings. It is claimed to be useful or beneficial "when uncomplicated with other bacteria," and that is so nearly impossible that it is almost like talking about white blackbirds.

Dr. Herter once said, in a lecture, that every one desired to be healthy, and that if there were only a little pill that could be taken, three times a day, that would do the work, everybody would gladly take the pills; but not so willingly will they lead the hygienic life, with its regular habits, temperance in eating and drinking, plenty of sleep, exercise, bathing, etc. Since there is, then, no specific, what can be done to fight tuberculosis?

In the advanced stages, very *little* beyond palliatives and means to ease the patient. In the early stages, *much,* almost every case being certainly curable. Long before the bacilli were discovered it was noted, at autopsies, that a large proportion (one-third) of the subjects examined showed evidences of old tubercular processes that had completely healed. These people had at some time been infected, perhaps, without being aware of it, yet had died of some other disease or of old age. Why didn't they die of tuberculosis? Evidently tuberculosis, in a large proportion of cases, is a self-limited disease. What limits it? Evidently again there must be something in our own organisms that fights the bacilli, and such is now known to be the fact.

The body in health forms substances or cells that, circulating in the blood, are borne to the part attacked, and immediately set about defending the system from its enemy. I can here only describe this in a most general way.

These corpuscles or cells in the blood virtually erect a wall around the invaded tissue. A certain substance in the blood causes such bacteria as have power of locomotion to become agglutinated, or clumped together, thereby losing their motility, and thus being prevented from migrating into other tissues. At the same time favorable opportunity is given for still other protective bodies to seize and absorb, or destroy the virulent or dangerous bacilli, while the blood-current carries the debris to the proper organs to be excreted. The white corpuscles eventually restore the space left by the broken-down tissue by building up simple connective, or scar tissue, where it is not already filled in with inert "cheesy" material. There are still other substances or elements which serve to neutralize the toxins, or poisons, set free or engendered by the bacilli.

If the body is in good health the bacilli are promptly downed. If the body is vitally a little below par, from any cause—underfeeding, cold, poor hygienic conditions, or inherited susceptibility—then the struggle is more prolonged, and unless outside help is received, with very likely a fatal termination. Now, then, what has Stony Wold to do with all this? We have seen that there is no little miracle-pill that will restore health; that the body itself will take care of these invaders in the early stage, often with no help at all, but very surely with judicious help; and hence, when you send a patient to the sanatorium in the Adirondacks this is what you do. You place the patient, first, under the most favorable conditions to lead that hygenic life which must be the royal road that leads to health. You take her out of the abodes of darkness that the bacillus loves and place her in sunshine, which it hates—or would, if it had any feeling in the matter, for sunshine kills it; out of the dampness, in which it breeds, into dry air, which is fatal to it; out of the bad air of the back streets and alleys to the pure air of the mountains; out of the gloom of the tenement-house to an atmosphere of cheeriness and hope. With proper food you build up the patient's strength so that her own body can resist and destroy these parasites that are undermining it. In a couple of months or so the corner is turned, the body powers and not the bacilli are in the ascendant; the tubercular processes have been limited, surrounded by a wall of connective tissue; they are now harmless scars; you have won the victory, and the patient has her life.

There are two great motives impelling us to do this noble work. First, our duty to our *neighbors,* and second, our duty to *ourselves* and to those we are bound to protect and defend. Gladstone's saying, on joining a certain society, applies here: "We go into this society seeking our own good through the good of others." In like manner here we protect ourselves by saving our neighbors.

115 Convent Avenue.

* *

IS ASTROLOGY TO REASSERT ITSELF AS A SCIENCE?

By Adair M. Evans, M.D.

The last generation was taught to look upon the claims of self-styled astrologers as unmitigated fakirs, and upon the art known to the advertising world as astrology as a reminiscence of a dark age and of darker acts. As applied to the hundreds of harpies who have for years flaunted their preposterous promises of certain help in matters of "love, marriage and business," with a horoscope thrown in, recounting the past and revealing the future, at all the way from ten cents to a dollar for "full readings," the estimate is not far from the truth. Most of them do a little palm reading, shuffle a pack of dirty cards, and reel off futurities made up of vague generalizations that will fit any subject, and depend upon the patronage of the ignorant, credulous and superstitious to help them out with a precarious living.

Of course intelligent people do not patronize these small-fry swindlers, except occasionally as a matter of fun or curiosity.

But another class of palmists and astrologers seems to be working its way to the front, without, however, any appeal to ignorance or to the public in any advertising way. Has science about concluded to drop its old habit of pooh-poohing the influence of the planets in connection with terrestrial affairs? Astronomers are eagerly seizing every opportunity of securing new views of the heavenly bodies, especially during eclipses, transits and other periodic changes. Expensive expeditions are periodically fitted out for the purpose of witnessing and photographing these occurrences from the most favorable latitudes and localities that our planet affords. More accurate and powerful instruments are constantly being devised, and at least one enthusiastic electrician has ventured an opinion that we are on the eve of communicating with one of the nearest planetary bodies.

Ignoring and perhaps practically unaware of the existence of the fifty-cent fakirs, the newer devotees are hard students of nature and science, who have learned from studying the revolution inaugurated and the revelations already made by radium and the X-ray that we have not yet touched bottom in scientific demonstration. The wildest scientific speculations are to-day accorded a respectful and generally interested hearing, and no man among the scholars is ready to assert his final convictions as to the possibility of any alleged scientific undertaking, no matter how absurd it may seem when judged by existing standards.

Once we were very emphatic in asserting that the lines in the hand are the result of accident instead of being a virtual engravure of individual history, character, limitations and prospects. Now, it is beginning to be conceded that the handwriting on the wall was not more distinct, positive or prophetic than the handwriting on the hand.

Referring to the word *astrology,* the Latin word is *astrologia,* which Bullion defines as "*The science of the stars,*" and, "*A treatise on astronomy.*" The Century gives practically the same definitions, including these two, "*practical astronomy,*" "*astronomy in its earliest form.*"

Astrology proper is, therefore, a science; in short, one of the leading sciences, and one in which progress is making constant and rapid strides. In no department of the exact sciences has there been such radical advances, discoveries and corroborations as have taken place in the field of astronomy. Within the period of the present generation the motions, periods and distances of the planetary bodies have, many of them, been recomputed, new asteroids have been identified, named and measured, and the interrelations of the revolving worlds that people space and fill us with unutterable awe are being more thoroughly and accurately studied than ever before in the history of the human race. Nor is it at all wonderful that this is so since, as already stated, instruments of precision and increased power have been so abundantly multiplied.

In the past, philosophers contented themselves with the assumption that since matter exists and is indestructible it always has existed and always will exist. The principal argument adduced in support of this assumption insists that it is impossible to conceive of any occurrence answering to original creation or final destruction. This leads to the corollary that force or motion is the original and fundamental causative, and is therefore the only persistent entity or existence, matter being merely a manifestation of force, motion or vibration. Force or energy being omnipresent, it must necessarily be omnnipotent. If we assert one we cannot escape the other.

If matter is simply one form of motion or energy, then the infinite forms of matter represent infinite forms of energy—vibration. One degree of energy or rate of vibration must always represent one and the same form of matter, and this being true, many things not usually classed as material, corporeal or solid are nevertheless matter. Following this line of thought, light and heat are forms of matter, because they are the result of vibrations or force specifically directed. Music is rhythmic motion; thought itself is matter, psychic matter, if you will.

As compared with the teachings of half a century ago this is revolutionary, heterodox, rank heresy. But epithets do not alter facts, and in the outcome all things have to face the facts. Truth is no respecter of times, places or persons.

Evidently the old trend of thought will never be restored, whatever else comes. The world has outgrown it, has shed it as the snake sheds its wornout and useless skin.

Is a similar change taking place in the attitude of scientists with regard to this mass of stuff that has all along been indiscriminately jumbled together under the name of Astrology. Are intelligent people learning to discriminate, so that astrology, necromancy, occultism and thaumaturgy are no longer synonymous? If we are compelled to admit that the weather multiplies, grows freaky and slops over whenever sun spots increase in size or number, or shift their latitude and longitude on the solar geography, and if epidemics of disease are favored or inhibited and the death-rate definitely affected; and if dispositions and mental states are disturbed, depressed or elevated by these influences and occurrences, are we warranted in asserting that the less accurately observed but not less pronounced planetary changes, conjunctions and obscurations are without influence on terrestrial things?

Scores of pertinent and practical questions suggest themselves. Is the sun merely a center of radio-activity? Are the fixed stars other radium centers? Are all our light, heat, magnetic and electric manifestations but varying forms of radium emanations?

Why should this or that event, or one's character be affected in any way at birth by the relative positions of the planets, the phases of the moon or the accidental dominance of a purely arbitrary zodiacal sign at that particular moment? But if they are thus influenced and sometimes radically changed is it any more mysterious or wonderful than the now fully demonstrated miracles of these newly discovered metals? Can we not explain these influences quite as easily as we can account for the chemical capers of polonium and the contradictory energies manifested by a few grains of radium? Have these fairly startling revelations of Professor Curie—and let us not forget his clever running mate, without whom his work would never have attained success—practically undermined the old incredulity as to undemonstrated hypotheses?

Is not the attitude of scientists to-day one of toleration, inquiry and expectancy rather than of antagonism, skepticism and intolerance? If this were not so we would not see scholars, college professors, eminent jurists, and level-headed divines all consulting "the stars" and holding themselves open to conviction, even when they cannot quite accept the evidence of their own senses.

Is this modern demonstration a restoration or an evolution? Granted that it is not the kind of astrology that is advertised in the "personal" columns of the city papers, and that depends on the possession of some faculty of mind-reading, hypnotism, telepathy or thought-transference, that makes it necessary for the wily operator to carefully vis-a-vis his expectant subject, transfix him or her with "magnetic" glances, and by the aid of physiognomical expertness read off a lingo of plausible commonplaces in linguistic hifalutin, more or less embellished with glittering generalities that would apply equally well to any one of the next dozen applicants, and that get to be a stock in trade. Granted that the human anatomy, even to its minutest lines and configurations, is a visible exponent of character and of the real ego stripped of all simulation and pretense, how is the interpreter of anatomic lines, outlines and microscopic variations to define and combine these apparently accidental incidents so as to form a system by which character in detail can be told and the probabilities of any remarkable future events foretold with any approach toward verisimilitude?

Astrologers themselves are modest. They call it "the predictive art." Their attitude may be appreciated from the thought so well expressed by Prof. Oliver Lodge in his address before the British Association at its Cardiff meeting:

"If once we grasp the idea that *past* and *future* may be *actually existing,* we can recognize that they may have a controlling influence on all present action; and that the two together may constitute the *higher plane* of totality of things, after which, as it seems to me, we are impelled to seek, in connection with the directing of force or determination, the action of living beings *consciously directed to a definite and preconceived end.*"

Or from Winchell's syllogism in his "Cycles of Matter":

"This continuity and unity of history [of which he has been treating] repeat themselves before our eyes in all conceivable stages of progress. The phenomena furnish us with the grounds for the generalization of two laws which are truly *principles of scientific divination,* by which alone the human mind penetrates the sealed records of the past and the unopened pages of the future. The first of these is the law of Evolution, to phrase it for our purpose, *the law of correlated successiveness or organized history in the individual,* illustrated in the changing phases of every single maturing system of results. These thoughts summon into our immediate presence the measureless past and the measureless future of material history. They seem almost to open vistas through infinity, and to endow the human intellect with an existence and a vision exempt from the limitations of time and space and finite causation, and to lift it towards a sublime apprehension of the supreme intelligence whose dwelling-place is Eternity."

The scientific astrologer claims to recognize a law of "correlated successiveness," and is led to believe that all future time, or rather the succession of events by which the idea of time is made evident, is already in existence, waiting only to be read and interpreted. Are, then, the past and future merely extensions, backward or forward, of the present? Is the future of races and nations, as of individuals, included in the circle of existing things; and is it predetermined wholly by its dependence on the past? And does the acceptance of this assumption necessarily involve the theological doctrine of predestination, or that of fatalism?

Emerson says, "The idealist views the world in God. He sees the whole circle of events, of persons and things, not as painfully accumulated, atom by atom, act after act, in an age creeping past, but as one vast scene, painted on the instant eternity by the hand of God, for the eternal contemplation of the human soul."

The astronomer unerringly predicts the return of comets, the rising and setting of sun, moon and evening stars, the conjunctions, occultations and other phenomena of the planets, and also the lunar and solar eclipses, a century or many centuries in advance of their occurrence. Can the astrologer group concurrent celestial phenomena, and by similar methods predict when certain events will unerringly repeat themselves? Ought there to be anything supernatural or mysterious about this?

Or shall we say that a scientific structure, such as astrology claims to be, has been building through the long ages of the past on a basis of pure imagination and self-deception, and that it cannot respond to the test of the plumb-line and level of scientific accuracy?

On the contrary, is this so-called predictive art forever set on the foundations of Nature herself, and so linked with the laws of destiny as to be one with the very soul of creation?

Pythagoras held that all things are formed after a type existing in the Universal Mind. Is astrology the ambitious Key that strives to unlock the mysteries of this Universal Mind?

Granted that Bertillon and Lombroso have added a new and important branch to the study of anthropology, by their systems of anatomic measurements and charts, can these systems be extended indefinitely to take in in detail the utmost minutiæ of anatomic variations in configuration? We have admitted and accepted their premises and are applying the principles educed in the registration and identification of criminals throughout the civilized world. We have been compelled to admit that every irregularity of form, feature or limb, every variation of the cerebral hemispheres, of the two hands, of the finger lengths, of the ungual outlines, of the texture of the skin, muscles, bones, hair, teeth, the height, weight, postures and propensities, each and all of these, slight though they often are, are positive indices of individual character, tendencies and limitations, if we know how to read them.

If we have gone so far where shall we stop?

Thus the subject remains befors us, assuming the form of a persistent and uncompromising interrogation mark.

CLIMATE, CLOTHING AND SUICIDES.

By Charles E. Page, M.D.,

Boston.

Frequent attention has been called at different times by criminologists to the relations existing between climatic conditions and suicides, says a writer recently. Dr. Oscar Geck, of Strasburg, has just published some statistics to prove that the greatest number of suicides occur in summer, the fewest in winter. One hundred thousand cases, occurring in Prussia between the years 1876 and 1895, have been studied. Some authorities discussing the question maintain that heat causes a nervous excitement in summer which accounts for the number of deaths by self-destruction, adding that most of us eat more in summer than we ought to, and that "the excess of force or plethora thus engendered seeks some outlet in crime. Hunger, then, apparently, is not an incentive to self-destruction. Meat, tea, coffee and other stimulants, according to other authorities, when taken in too great quantities, produce acids which bear a distinct causative relation to suicide."

To all this the present writer heartily subscribes; but, having this moment escaped the imminent danger of self-destruction by removing his coat and trousers in the privacy of his office on this hot August night (having worn no under garments for upwards of twenty years, winter or summer), he feels sure that no remedy for the disease in question will ever be found that does not embrace a radical reform in the matter of clothing in hot weather. Indeed, I am in this connection reminded of the remark of a brilliant young Irishman, a successful New York merchant, formerly of this city and a frequent consultant of mine, until he concluded his hygienic education was complete. "I now believe," he wrote, "the wearing of underflannels to be a sort of suicidal mania with which the great majority of people are afflicted. After my five years' experience I am sure that I would sooner take to drink than resume the mischievous inner suit that was literally sapping the life out of me until you took me in hand and taught me the first principles of hygienic dress."

In an article on "Summer Comfort and Health," in the *Philadelphia Polyclinic,* I said: "In the first place, keep cool, as the artist mixed his colors—'with brains.' But a man may have 'a bushel of brains' and still never make a good artist, nor unlearn the false teachings of his youth, more particularly when these represent an almost universal practice of civilized people. We constantly observe the brightest of men and women who, though, of course, desirous of securing health and comfort in summer, still take the greatest pains to make themselves uncomfortable by means of superfluous—and therefore unhygienic—clothing, and no end of disease and sickness arise from this absurd folly. That this condition is largely the fault of those who ought to be in fact, as they are commonly supposed to be, wise in all matters pertaining to health, none can doubt."

We refer to the grand army of family physicians. We pose as healers of the sick and, "on paper," as instructors in prophylaxis, though it must be admitted that on general trade principles it is "bad business" for us to teach people how to avoid sickness, since, as has been said, we can thrive only on the decay of our neighbors; but the joke of it is, of almost all professional men, physicians are the shortest-lived! And this, too, in spite of the fact that, as a rule, we poison ourselves less with drugs than we do our clients. The medical profession furnishes a very large proportion of suicides. Is this because the members know less of the health laws of nature and "protect" themselves more with flannels than is the rule with the laity?

The *Polyclinic* in calling its readers' attention editorially to the article above alluded to, says: "All observation shows that for individuals in comparative health, no possible regulation of environment, either in the selection of a natural climate, in the construction and heating of dwellings, or the choice of material and amount of clothing, can supersede, or, indeed, compare in importance with the influence of the physiological mechanism for the regulation of heat production and heat distribution within the body."

"To keep this in the most perfect working order should be the first concern of one who fears disease from change of temperature; and it cannot be kept in good condition without opportunity for constant and considerable exercise. The natural stimuli which provoke its action, and which are essentially variations of heat and cold, particularly properly proportioned shocks of cold to the surface of the body, must be supplied or permitted. . . . Probably the persons who suffer most from 'colds' are those who, in their fear of such departures from health, try hardest to avoid the changes of temperature that are necessary to keep the heat-regulating organism in good condition. . . . Next to temperature," continues Dr. Jackson, "relative humidity of the air is the most important factor in climate, and this also is powerfully influenced by clothing. The depressing effects [predisposing to suicide!] of warm, damp weather are familiar to all. To some extent they doubtless depend on the influence of such an atmosphere upon respiration, but also to a very considerable extent they are due to the *interference with the normal evaporation from the surface of the body.* [Italics present writer's.] Many articles of clothing in common use, indeed, any clothing used in too great quantity, tend to keep the body surrounded with just such a moisture-laden atmosphere."

To the intelligent physiologist—and it would almost seem that it would be clear enough to the minds of all ordinarily bright men and women—the moral of all this is. that we should use, and not abuse, clothing. It is, moreover, as irrational to swelter the body in heavy outer, and flannel inner, clothing even in winter in our warm living rooms, or in warm weather when it comes in December, January or February, as in June, July and August. Theoretically, this seems an altogether rational conclusion; and the writer is able to declare, after more than a score of years of personal experience, and observation of the experience of a very large number of consultants who have, like the gentleman referred to, adopted his views, that in practice this rule works like a charm in promoting the comfort and health of human beings.

"I always catch cold when I put on my winter flannels," said a consultant; "how do you account for that?" In view of what has been said, one need not be a sage to explain this seeming mystery. Unless it happened that the fires were out in his home and office, or that the mercury took a tumble of twenty or thirty degrees about the time of changing thin for thick flannels, some sort of disease must almost necessarily result from the extraordinary smothering of the skin (which is a true *breathing* organ); and he was lucky to get out of it with a little nose-running, or hoarseness and hawking and spitting. It is the ones who put on their heavy flannels by the calendar who are predisposed to pneumonia, influenza, fever (grip) or other filth disease if the weather happen to continue.

Said a widow of twenty years, an elderly lady, who sought my advice on learning about my theory of dress: "I believe that you are right in this matter. My husband never wore flannels until the last winter of his life, although I had urged him every fall to adopt the practice. But that fall he yielded to my persuasion and let me purchase a set of flannels, and I felt that I had achieved a victory and was very happy when he put them on. Never before had he been subject to colds; but, as I now remember the experiences of that winter, he was constantly troubled with them, till finally he had an attack of pneumonia which proved fatal." "Well," I replied, "after all these years you can perhaps bear to be told that it was doubtless your nice flannels that did the business for him, or, at least, that caused the disease —*the doctors did the rest,* to copy the style of the kodak merchants!"

Why not, indeed, when, as history teaches, entire races have been stricken from the face of the earth practically by clothes alone? Hittell, in his history of California, calls attention to the effect of civilization upon the Indians. When the Spanish padres, after converting the natives to Christianity, compelled them to wear clothing, they began to die off with pulmonary troubles.

The same disaster overtook that once hardy and prolific race, the aborigines of Tasmania, whose fate affords a most significant object lesson in clothing. Not a soul is left, and history here again tells the story of the disastrous effects of smothering the skin unduly. The Tasmanians were enabled to withstand most of the evils of civilization; they got on very well in spite of rum, tobacco, and all manner of abuses at the hands of the invaders, including massacres even, and still throve and multiplied; but when, at last, the encroachments of civilization compelled the use of clothing, they began to decline rapidly, and as with the natives of California, chiefly with pulmonary diseases.

In view of facts like these, to which a volume more could be added from the writer's case-books, proving the harmfulness of excess of clothing, the immediate benefits derived from removing the surplus, and from the employment of the air-bath, it is not difficult to explain the wonderful successes at the sanitarium in Vèldes, Austria, where consumptives and other deeply diseased patients are made to spend most of the daylight hours naked in sunshine or (warm) rain; light and air in profusion directly in contact with the skin, appropriate diet, and wisely directed exercise, give them for the first time in their lives a fair chance for a "natural cure."

Says the sanitarium *chef:* "There is no life without air; no health without light. We not only breathe through our lungs, but also through our skin, which contains millions of minute blood-vessels thirsting for oxygen, and millions of nerves thirsting for light. . . . The light of the sun favors the change of matter; in other words, the processes of life. . . . Another beneficial influence of the air-bath lies in the constant changes of sunlight and shade, heat and cold of the atmosphere, by which the skin is stimulated—a stimulus that does not remain confined to the surface of the body, but is extended, through the nerves, to the remotest internal organs and tissues. Thus, in opposition to the common drug system which makes the *stomach* the scapegoat of its efforts, the physico-hydriatic system effects its cures principally through the *skin.* Leaving the internal organs undisturbed, and allowing them to perform their functions in peace, or to repair damages themselves without interference from drug poisons, the alternate application of heat and cold on the surface of the body produces a powerful effect, not only on the skin, but through the skin upon the whole organism in its remotest parts. . . . The vitality of every molecule is raised, the strength of the individual increased."

Evidently we have lost sight of the suicide question; but that was merely the text, or, shall we say, the *pretext,* for an article aiming to prove that it is not the natural heat of summer that causes suicides or other manifestations of disease; but rather the *artificial* heat produced by excess of clothing that plays the mischief. And, then, to think of the myriads of immortal souls doomed eternally to a heat vastly more trying than that of the worst torrid wave on earth, from constantly breaking the commandments, damning a condition that is very largely in their own power to remove! Of all stupid sacrifices, the most absurd, as it seems to me, is that of wearing *two suits of clothes* in warm rooms or in hot weather, when both the law and the prevailing fashion in dress, to all outward appearance, at least, can be satisfied with the single outer suit, speaking for males; and a rational compromise is practicable in feminine attire.

154 Tremont Street.

[How about the cleanliness of this suggestion? Wouldn't it be more sensible or more hygienic to dispense with the outer suit?—Ed. Gazette.]

HACHISH IN THE OLD TESTAMENT.*

Dr. C. Creighton contributes an extremely interesting article to a recent number of *Janus* on the indications of the hachish vice in the Old Testament. The use of hachish, the disreputable intoxicant drug of the East, like that of opium, the respectable narcotic, is of unknown antiquity. In the Old Testament there are some half dozen passages where a cryptic reference to hachish may be discovered and in two at least of these passages the allusion is made easy by the use of a significant word in the Hebrew text. This word is designedly mistranslated in the Vulgate and in the modern versions it is confessedly unintelligible. The first passage is Canticles v. I. "I am come into my garden, my sister, my spouse: I have gathered my myrrh with my spice: *I have eaten my honey-comb with my honey:* I have drunk my wine with my milk." In the Hebrew text the phrase in Italics reads "I have eaten my wood (yagar) with my honey (Debash)." St. Jerome in the Vulgate translated the Hebrew word meaning "wood" by favum or honey-comb; whilst the LXX adopted a similar license by translating the passage "I have eaten my bread with my honey." The term yagar, however, is employed in many other places in the Old Testament and always in the sense of wood, forest, planted field, herbage, or the like, and when real honey-comb is meant the Hebrew word is either tzooph or nohpheth. The meaning, therefore, of the passage in Canticles is clear enough in its aphrodisiac context: "I have eaten my hemp with honey," and this is still the elegant way of taking hachish in the East. The meaning of yagar (wood) in association with debash (honey) is made clear by I. Samuel xiv., 27, when Jonathan dipped the point of his staff into "honey-wood," and, merely tasting the honey, his eyes were enlightened. The one passage refers to the aphrodisiac effect of hachish, the other to its bellicose or furious effect. The correct exigesis of I. Samuel xiv, 25-45 is of great importance not only for understanding Jonathan's breach of a certain taboo but also for the whole career of his father Saul, ending in his deposition from the kingship through the firm action of Samuel, and the pitiable collapse of his courage on the eve of the battle of Gilboa. The theory is that both Saul and Jonathan were hachish eaters: it was a secret vice of the palace while it was strictly forbidden to the people: Saul had learned it of the Amalekites: it was this vice and not his disobedience in saving captives and cattle alive, which was his real transgression and the true ground of his deposition at the instance of the far-seeing prophet. No true statesman would have taken action on account of a merely technical sin of disobedience: the disobedience was real and vital, but the substance of it had to be veiled behind a convenient fiction. One great object of Jewish particularism was to save Israel from the vices that destroyed the nations around; and Samuel appears in this respect as the first and greatest of the prophets, the prototype *censor morum.*

The incident related in I. Sam. xiv. arose during a raid upon the Philistines in which Jonathan distinguished himself by the number of the enemy he slew, but at the same time broke a certain law or taboo for which he was afterwards put upon his trial and condemned to death. We are told that previous to the slaughter of the Philistines "all (they of) the land came to a wood and there was honey upon the ground. And when the people were come into the wood, behold the honey dropped; but no man put his hand to his mouth, for the people feared the oath. But Jonathan heard not when his father charged the people with the oath; wherefore he put forth the end of the rod that was in his hand and dipped it in an honey-comb (yagarah hadebash) and put his hand to his mouth, and his eyes were enlightened." The Vulgate again translates the Hebrew words signifying "honey-wood" by the misleading term honey-comb though the Syriac version gives a more intelligible account in the words *Et sylvas in-*

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*Reprinted from *The Hospital.*

gressi essent, essetque mel in sylva super faciem agri, flueretque mel: expressing not inaptly a field of hemp with the resinous exudation upon the flower stalks which would flow or run by heat. Indeed, Churrus is collected in Central India during the hot season by men clad in leather, running violently through the hemp fields. The soft resin adheres to the leather, and is subsequently scraped off and kneaded into balls. The whole incident in the Old Testament is obviously dramatized or made picturesque: the growing field of hemp, the men passing through it, Jonathan dipping the end of a rod or staff into the resin upon a stalk as he passed by. The real meaning is that Jonathan was a hachish eater, and the effect upon Jonathan on this occasion was that he ran amuck amongst the Philistines.

The evidence that Saul was a hachish eater is not so direct as in the case of Jonathan. There is not a hint of it until after the incident of the forbidden honey, but in the inquiry which followed it is significant that in the trial by lot Saul and Jonathan are ranged together on one side and the people upon the other. The violent antipathy of Samuel towards Agag leads to the presumption that this king had corrupted Saul, for the Amalekites were the tribe of Arabs who were engaged in the carrying trade between the Arabian Gulf and Lower Egypt or the Mediterranean. They had in their hands the trade in gold and spices and drugs: probably the same Arabs among whom the name of Hachashin was found in the mediæval period, and from whom the Latinized name of assassini was brought to Europe by the returning Crusaders. The appearance of David as a harper to soothe Saul when he was possessed of an evil spirit also points to the use of hachish, for Dr. Moreau ("Du Hachish et de l'Aliénation Mentale") has shown that the only kind of mental alienation influenced by music is that due to intoxication by hachish. The sudden throwing of the javelin at David whilst he played before the king is a very graphic representation of the ungovernable fits of temper which hachish produces, whilst the most significant and the most pathetic symptom of all is Saul's failure of courage on the night before the battle of Gilboa.

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DIFFERENT WAYS ANIMALS HAVE OF TAKING BATHS.

One has only to see a cat making her toilet with her paw soaked with saliva, a fly conscientiously washing his hands on the window pane, an elephant giving himself hygienic shower baths, a monkey looking for his fleas, to realize that the sentiment of cleanliness is very widespread among animals. This sentiment, however, is not universal. Some animals show marked evidences of uncleanliness, and evidently prefer to have their skin covered with dirt. For certain of them it may be said that they have a reason for violating the most elementary laws of cleanliness.

The larva of the masked reduvius envelops himself in dust both in order to escape his enemies and also in order to be able to approach the insects upon which he feeds without being observed. For him the dust is "a wall-colored coat," such as the cutthroats wore in the middle ages.

The frog fish covers himself with mud and sea weed in order to swim unperceived over the bottom of the sea. Thanks to the ribbon-like appendages with which his nose is provided, he attracts the little fish of the vicinity who, not seeing the hidden jaws, approach without fear and are swallowed whole.

Many of the ruminant and pachydermatous animals have the habit of rolling in the mud and seem very much pleased with the crust of earth which covers their skin. This protective mantle is, in fact, very useful to ward off the attacks of parasites. The eland, the buffalo, the bison and the rhinoceros take these mud baths, and they are indeed no more repugnant or useless than those which Frenchmen take at Dax and Barbotan.

A large number of birds dig down into

the dust and cover themselves with it with evident pleasure and several mammals do the same thing. Here is how Dr. Ballion explains the instinct of these animals who powder. It is to be remarked that those species to which the contact of water is repugnant have the habit of rolling on the earth. From this he infers that these two agents, so opposite in appearance, water and dust, have from the hygienic point of view similar results. As to the motives which lead the animal to these two things they differ in various cases.

Among these motives there is the desire to scratch, which is felt among many animals. Thus we may explain the love which horses, dogs, donkeys and camels have of rolling themselves on the earth. As far as the neck and sides of the body are concerned, they have the resource of rubbing themselves against a tree or a wall, but for the centre of the back they have no chance except by rolling on the ground. It is very interesting to see the intense pleasure which they derive from this exercise.

Another effect of these exercises is to free the superficial skin from the excessive sweat and sebaceous matter which is a burden and makes the hairs stick together. This is notably the case with the rodents, such as the rats, who are most enthusiastic dust bathers, giving themselves up to its exercise at least once a day. M. Lataste, the French naturalist, has observed this habit among those funny little kangaroo-like animals, the jerboas. In captivity if they have sand in their cages their coats are superb, but if they have no opportunity to powder themselves it sticks together in tufts and has a very mean appearance.

The donkey when lying on his side shows great skill in gathering up dust with his tail and scattering it over his stomach. It is there that the perspiration gathers, and doubtless the donkey's intention is to relieve himself of this.

The oxen obtain similar results by different methods. During the summer heat they toss into the air with their horns heaps of dry grass and they also kick up the earth with their fore legs so that it falls on their back. They act with such violence when doing this that they sometimes become invisible in the midst of the thick cloud which they raise.

When the animals are maddened by parasites they roll in the dirt in order to remove these minute enemies. The elephants after their bath roll in the dust and take earth in their trunks and powder their bodies carefully with it. It is generally known that birds have the dust habit. They are generally afraid of water and they replace it by dust as a cosmetic. While they are setting and compelled to remain immovable for a long time they are greatly troubled by parasites. Finally they feel an irrepressible desire to free themselves of the plague. Instead of bathing in the nearest pond as other species would do they take a dust bath. Among the dust birds are all the chicken family.

The chicken digs a hole in the powdery earth of the farmyard and lying on its side, its feathers sticking up straight, throws up with its claws and its beak clouds of dust which penetrate through the feathers to the skin. Then the chicken runs about with outstretched wings shaking the dust off.

* * *

MANY DISEASES DUE TO BAD TEETH.

That bad teeth are the cause of many more troubles than mere toothache was explained in a paper on "Mouth Infection Due to Natural Teeth," recently read before the Philadelphia County Medical Society, by Dr. D. D. Smith, of Philadelphia. Contagion and disease, according to Dr. Smith, lurk in the human mouth. To septic conditions of the teeth many disorders of the stomach, the kidneys and the nervous system are due, while the most pernicious factors of lung infection are intrenched in the teeth.

"In addition to the toxins engendered amid stagnant accumulations perpetually adherent in the mouth of consumptives," he said, "the sputum itself in appreciable quantity clings to the already infected tooth surfaces, increasing bacterial plaques and multiplying bacterial cultures in the mouth. Thus an endless chain of ever-increasing contagion revolves in foods and air, to the blood, thence to organs and tissues, to be deposited, it may be as initial infection or perhaps an augmentation of some pathological state already established; or it may return to the mouth in mucus or saliva, or in some inflammatory exudation, there to begin again its round of infection."

In 1894 Dr. Smith began a line of experimental investigation to determine the true source of tooth decay. Results from these experiments, carried forward on patients only, were all in harmony with the theory that caries of the teeth begins at some point on the exposed enamel surface, and that it is primarily due to the affinities of the surface of the teeth for the acids of the mouth. What seems indisputable proof of this theory is the fact that, if a devitalized or pulpless tooth, such a tooth as is conceded to be the subject of more rapid decay than one with a vital pulp in the same environment, be removed from a mouth in which resolution is rapidly taking place, and it be placed in water, alcohol or glycerin, or simply exposed in the air, all caries in that tooth is at once arrested.

The inevitable deduction from such an experiment is, that caries of the teeth is a result of mouth conditions: and this is in accord with clinical experience. Growing out of the experiments referred to and their results, Dr. Smith has developed a system of caring for the teeth diametrically the opposite of all former conceptions, theories and methods of practice; and whenever the system has found typical exemplification, whether in childhood, youth, middle life or old age, most favorable and satisfactory results have universally followed.

The treatment consists in enforced, radical and frequent change of environment for the teeth, and perfect sanitation of all mouth conditions. Experience having demonstrated that the most careful and painstaking are unable, with the agents commonly employed, as the tooth brush and dentifrice, toothpick and dental floss, soaps, so-called germicidal washes or other agencies, to effect this end, the plan of forcible and frequently renewed sanitation by an experienced operator has been instituted with great success.

The process consists in most careful and complete removal of all concretions, all calcic deposits, semisolids, bacterial placques and inspissated secretions and excretions which gather on the surface of the teeth, between them or at the gum margins. This is followed by thoroughly polishing of all tooth surfaces by hand methods (power polishers should never be used), not alone the more exposed labial and buccal surfaces, but the lingual, palatal and proximal surfaces as well, using for this purpose orange-wood points in suitable holders, charged with finely ground pumice stone as a polishing material. Treated in this manner, the teeth are placed in the most favorable condition to prevent and repel septic accumulations and deposits, and not less to aid all efforts of the patient in the direction of sanitation and cleanliness.

Maintained at intervals of about a month, this treatment is followed by immediate lessening and ultimate arrest of all inflammations and all inflammatory exudations from the oral tissues and complete eradication of the stagnant accumulations otherwise perpetually adherent on and about the teeth. Of the whole number of subjects under this monthly "prophylaxis treatment," all have shown some phase or state of general health improvement.

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ONE DIFFERENCE BETWEEN PEOPLE AND LOCOMOTIVES.

HERBERT N. CASSON.

WE feel impelled to appropriate from the *N. Y. Journal* this short, sharp and unequivocal arraignment of "the do-nothing class":

It is interesting to go to a railroad yard and to watch the men who are attending to the wants of the locomotives. Whenever a locomotive is being cleaned, oiled, polished, watered and fed, you may be sure that an order has come that it must be put to work.

There is not a useless engine in the yard. Every one has either just come in from a long trip or is waiting to be sent out. No engine is allowed to eat coal or to drink water or to have itself oiled and polished unless it is able to do useful work in return.

When an engine is out of order it is sent to the repair shop. When it is too old and broken to be mended, it is sent to the junk heap. But such a thing as a locomotive idler is not known around any railroad yard in the country.

And now, to change the subject and to speak of people instead of locomotives, it may be worth while to notice how differently human beings are treated.

It is a peculiar fact that most of the men and women who are fed and cared for in all the big hotels have not done any hard physical work and are not going to do any such work. They eat a six or seven course dinner. They pay $2 for it. Very likely they do not do work of any kind.

Yet in the same city, perhaps around the corner from some big hotel, a score or more of men are sitting on the sidewalk, eating chunks of rye bread and scraps of cold corned beef. Possibly the meal costs each of them five cents.

These men have been doing the hardest kind of work for five hours and will have to work for four hours more when their meal on the sidewalk has been eaten. They have been handling heavy iron girders, or digging up the street with pickaxes, or building a new skyscraper for Broadway.

It is just as if two or three locomotives in the railroad yard were to be cleaned and oiled and gilded and decorated with rare and costly gems, without being put to any real use whatever, while the other engines that did all the hauling were left uncleaned, unoiled, undecorated, and fed only with the poorest of coal.

Strange as it may seem, the people who live in the big hotels and who spend their whole lives sitting down to six-course dinners, sitting down in automobiles, sitting down in theatres, sitting down in Pullman cars, and so forth, have as many bones and muscles and nerves in their bodies as the laborers who dig with pickaxes and eat their meals on the sidewalk.

The peculiar differences that we notice are not in human bodies, but in human laws and customs. The very best social system is not yet as good as the poorest railroad system, so far as fair play and equal rights are concerned.

Of course, there have always been such odd customs among all races of human beings. The men who did the hardest work always got the poorest food and the least attention. The man who simply owned property and did not do any useful work himself always had his pick of everything the world produced.

But if this must always be so, why organize an American Republic? If the United States does not mean something different from this, why did it come into being, and why did Washington and Jefferson and the others think that they had done something new when they welded the thirteen little colonies into a nation?

It is true that in other countries when a family succeeds in becoming a set of idlers it generally remains so for hundreds of years, from one generation to another, while in this country the man in the hotel may be on the sidewalk next year, and the sidewalk man may be in the hotel.

Turn about is fair play; but why injure the man in the hotel with too much food and too little work, while the man on the sidewalk is being injured by poor food and too much work? Things are managed differently in a railroad yard.

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STRANGE PREDICTIONS.

The late Countess of Moray, at the age of twelve, was told by a gipsy that she would have two husbands, and that just before her death she would pass through a newly-felled wood in a carriage drawn by a piebald horse, to the house which she would never leave alive.

The prophecy was very strangely realized. Miss Lockhart's first husband was the Earl of Aboyne; the second the Earl of Moray. Shortly before her death she visited the Highlands of Scotland, and passed through the forest of Glenmore, then in process of removal, and on the following morning the coachman came to say that one of her four horses had died suddenly in the night, and that he had therefore borrowed another. It was a piebald one! She went on to Culloden House, where she was taken ill, and after a short time expired.

It is recorded of the poet Dryden, by Charles Wilson, in his "Life of Congreve," that having, strange to say, belief in astrology, he was careful to ascertain to the second the time at which his son Charles was born. He then calculated the boy's nativity, and was alarmed to discover that evil influences prevailed in the heavens. He concluded that in his eighth year, and on the day of birth, his son's life would be seriously endangered, if not lost; and that if he lived, the same danger would exist when he attained his twenty-third birthday, and again on his thirty-third or fourth. On the boy's eighth birthday, despite every precaution to keep him from any possible danger, he was nearly killed by the fall of a wall. On his twenty-third birthday he was seized with giddiness and fell from an old tower belonging to the Vatican at Rome, and he was drowned at Windsor while swimming across the Thames in his thirty-third year.

—London *Health.*

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THE PERFECT PEACE.

Dr. Lines, who has a keen sense of humor, carried off the anecdotal honors at a recent Chamber of Commerce dinner with the following story:

"At the time of King Edward's recovery from his threatened fatal illness with appendicitis," he said, "thanksgiving services were held all over the kingdom. At one of these the services were to close with the singing of a well-known hymn, which happened to be in the back of the books used in that parish."

" 'Let us close the services,' the pastor said, 'by singing the hymn, "Peace, perfect peace"—in the appendix.' "

—Freeport (Ill.) *Journal.*

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Department of Physiologic Chemistry.

WITH SPECIAL REFERENCE TO DIETETICS AND NUTRITION IN GENERAL.

THE FABLE OF THE EGG.*

By William S. Ely, M.D.,

Rochester, N. Y.

I offer a note on the free use of eggs as food, in selected cases of acute and chronic disease.

Some years ago, a neurasthenic patient in a private room, at the Rochester City Hospital, upbraided me, after six weeks of treatment by rest, massage, electricity and, what I then thought, liberal feeding, affirming that she was no stronger than when she first came under my care. Medicinal tonics only increased her nervous irritability and depression. I then began to increase her food up to the point of tolerance, administering the same at intervals of two hours, night and day. After a few days I discarded all medicine and succeeded in giving sixteen raw eggs and four quarts of milk every twenty-four hours. Improvement was soon apparent, with marked gain in weight, and complete convalescence followed in eight weeks.

For many years the tolerance of the human stomach for food in certain conditions of acute and chronic disease, had been noted by me. The case briefly outlined, again called attention to the subject, and repeated observations have proved that the stomach and digestive tract in many cases of illness can be systematically trained to receive and assimilate a surprisingly large amount of liquid food, far exceeding that which in health would be tolerated. While it is a matter of common practice to give milk and broth freely in many cases, not all physicians have prescribed raw eggs for their patients in the numbers which have been well borne and apparently conducive to recovery. My plea is, therefore, not for the egg—the value of which as food is universally admitted—but for its administration in selected cases in numbers which may to some appear fabulous. Philosophers are not agreed about the doctrine, "*omne vivum ex ovo*," and I may add that it is not yet determined to what extent life can be sustained by the egg. Those oft quoted experiments upon the stomach of Alexis St. Martin prove that the raw egg is one of the most readily digested articles of diet. It is almost always at hand, may be had clean and uncontaminated, and does not require the sterilization now demanded for milk. Can you think of any more concentrated food, or of any equivalent for the two ounces of nutriment of the average egg? Besides milk and beef juice, I have frequently prescribed a raw egg an hour—twenty-four whole eggs a day—in serious conditions of nervous exhaustion; and in the progress of pneumonia, diphtheria, and fevers marked by high temperature and rapid waste. This number is at times well borne, and has often lessened the necessity for alcoholic stimulants. Eggs may be taken in various ways, soft boiled, shaken with milk, but most easily, I think raw, from a tumbler in which they are freshly dropped from the shell. The patient is instructed to swallow the yolk, enveloped in its membrane, and floating in its albumen. Passing over the tongue, the yolk elongates, fits the pharynx and œsophagus in the act of swallowing, and the mouth is left clean and free from any taste. Some moral force on the part of the patient, nurse, and doctor, may be required to overcome a repugnance to the treatment referred to. As a rule, I have had no difficulty in making my patients amenable to my will in the matter. He is the most successful physician, generally speaking, who wills his patient to do what he deems necessary in the serious emergencies of sickness. This is the "mind cure," and the "faith cure," in which I emphatically believe.

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* Read at a meeting of the Medical Society of the State of New York. Republished from the *New York Med. Journal.*

With the numerous lengthy clinical records bearing on the administration of eggs in numbers which may be thought fabulous, I do not purpose to weary you. The briefest reference to a few cases at the present time must suffice.

Case I.—Mrs. H. Neurasthenia, aggravated case of long standing. Took fifteen eggs and one gallon of milk daily for six weeks. Recovery.

Case II.—Mrs. M. Similar case. Took twenty-four eggs and a gallon of milk and chocolate daily for eight weeks. Recovery.

Case III.—Mrs. B. Wife of an intelligent physician. Extreme neurasthenia; mental depression marked; insanity feared; treatment begun at Rochester City Hospital, 1892. Medicines discarded as worse than useless; eggs, milk, and chocolate, systematically administered by day and night nurse; improvement slow; patient after ten weeks taken home where the treatment was continued. Her husband wrote me in October of her complete recovery, and stated that from September 3, 1892, to September 3, 1893, she had taken 3,006 eggs. He felt certain that they had been an important factor on the recovery of a case with a dark outlook.

Case IV.—Miss V. Advanced consumption, 1891. Hectic fever. Taken from bed, where she had been confined for months, and placed in a bed in a specially constructed carriage, the object being to keep her out of doors as many hours daily as possible. Eggs and milk were pushed to the point of tolerance. She gradually gained weight and strength, sat up and drove herself, and carried her food in the carriage. She took fifteen eggs daily for a year—5,475 in 365 days. Her treatment has now gone on for over three years; the eggs lessened in the past year. She coughs constantly, and has advanced tuberculous disease—might be said to be a saturated tuberculous patient, kept alive by an indomitable will power and by a heroism in living out of doors in all kinds of weather, and in taking food in amounts that have astonished me. As to eggs she has been an exemplary patient.

Case V.—Miss F. Consumption. Fifteen to twenty-four eggs daily, marked improvement in weight and strength.

Case VI.—Mr. C. Diphtheria. Seen with Dr. Barber. Took an egg an hour for several days. Recovery.

Case VII.—Mrs. G.—Rochester City Hospital. Acute croupous pneumonia. Twenty-four eggs daily for four days. Recovery.

Case VIII.—Mrs. C. Seen with Dr. McCauley. Acute pneumonia. Fifteen to eighteen eggs a day for several days. Recovery.

Case IX.—Miss B. Severe case of typhoid fever, pulse 130, temperature 104 degrees for several days. Beginning with eggs and milk, the amounts of each were gradually increased until thirty-six eggs and five quarts of milk were taken in twenty-four hours, and this amount of food was taken daily for one week, then gradually reduced as fever subsided. Recovery.

Many cases similar to the above might be given, but those cited will furnish an idea of the varied disorders in which eggs are tolerated.

It is to be understood that in every instance they have been used for their supporting and restorative influence. In proportion as they have been well borne, stimulants have been found unnecessary. Milk, chocolate and broth, and such medication as was indicated, have been prescribed in connection with eggs. Although some patients have died while taking eggs, I can think of no case in which death was due to their liberal use. It is certain that numerous patients have recovered from serious and alarming illness, or that their lives have been definitely prolonged by taking eggs. The best test of their nutritive value is not their chemical analysis in the laboratory, but their vital chemistry shown in their tissue building capacity, for out of them are rapidly constructed the cartilage, muscle, nervous and vascular systems, and all the varied structures which enter into the composition of a large class of feathered vertebrates, ranking in nature next to the mammalia.

If you give eggs to your patients, do not be chicken-hearted in their employment. Do not fear the production of albuminuria from the ingestion of a large amount of egg albumen. In the case of typhoid fever referred to, acute nephritis coexisted, and the albumin and casts disappeared from the urine while thirty-six eggs a day were being taken.

In many other cases, tests of urine showed no albuminuria with the "egg an hour" practice. It will generally be found impossible to give eggs freely without the aid of a trained nurse.

So far as results are concerned, I would rather deal with a poor stomach managed by a good nurse, than with a good stomach under the direction of a weak, unmethodical nurse, who could not give a moral propulsion to her food and medicine. Often the treatment must be pursued with the regularity of a time table by night as well as by day.

Notwithstanding all possible efforts, nausea and vomiting and diarrhœa may often be produced, and the physician may be thwarted in his object. He will then try the white of eggs alone, variously combined, or will suspend them altogether. I have given the whites of forty-eight eggs daily for many days to a patient in the critical stages of typhoid fever.

Please remember that I am not advocating a fad, specific, or "cure all," for suggesting any original or untried method, or urging the indiscriminate administration of an article of diet to your patients. There may be only a small number of physicians present who have not appreciated the nutritive value of the egg liberally administered. I am addressing them, and I would urge that in some of their chronic cases of exhausted nerve centres, and in those acute critical cases which from time to time come under their care, and tax their resources for maintaining life until diseased processes can expend themselves, they should throw away their tonics, and possibly stimulants, and should gradually lead the stomachs of their patients up to the egg an hour practice.

Gentlemen, the early Christians saw in the egg the symbol of the Resurrection, and this symbol may be converted into a veritable Easter for some of your patients, by what at first thought some may deem the fabulous resurrection power of the egg.

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SALIVARY DIGESTION IN THE STOMACH.*

THE chemical effect of saliva is generally regarded as slight, its action being believed to be soon checked by the acid gastric juice. In 1898, however, Cannon showed, by skiagraphs, that there is a marked difference as regards peristalsis between the cardiac and pyloric ends of the stomach; at the former food is retained in a mass by the tonic contraction of this portion of the gastric wall, while the pyloric portion is undergoing active peristalsis and the contents in that region are, even after thirty minutes, usually far advanced toward chymification. Tests made on dogs and cats one to one and a half hours after eating show that here the contents are strongly acid, and the same is true on the surface of the mass at the cardiac end, but the reaction of the interior of the mass at the cardiac end remained unchanged. Further, Heyde, by feeding, and then carefully removing the stomach and freezing, found that the interior of the cardiac mass remained slightly alkalin or neutral for hours. And the same difference in the motility of the two ends of the stomach has been shown to exist in man. The reasons commonly given for considering salivary digestion brief are then by no means convincing, and salivary digestion may continue long uninterrupted in the unmoved mass at the cardiac end. Cannon and Day experimented with cats. Examination of the dried contents of the pyloric and cardiac ends of the stomachs after carbohydrate food mixed with active saliva had been given, showed that at the end of a half hour the percentage of sugar at the two ends was about the same, while at the end of an hour the cardiac end contains about 80 per cent. more sugar per unit of volume than the pyloric end. The absolute amount present in the fundus is, however, really much greater than this ratio would indicate, as the fundus contains, after an ordinary meal, about five times as much food as the pyloric end. After an hour the ratio of the sugar percentages at the two ends begins again to approximate unity, this change being probably due largely to diffusion of sugar into the pyloric end and to some extent to absorption. Position does not very notably affect the differences in sugar production, though when the fundus is lower slightly more sugar is found there. When liquids or small quantities of food are given, or when the stomach is massaged, the amounts of sugar at the two ends are nearly equal. The admixture of proteid with carbohydrate food protects the ptyalin from the action of free hydrochloric acid in the relatively small pyloric portion, and on the surface of the food mass at the cardiac end. The greater mass of the food at the fundus undergoes uninterrupted amylolysis not because the proteid protects the ptyalin, but because here the food is not mixed with gastric juice. Much of the starch not changed to sugar is changed to dextrin, and thus, since dextrin is not easily fermented, the food is saved to the organism. The especial value of this process lies in the fact that it occurs in the greatest degree in the fundus, where the hydrochloric acid inhibiting the action of many of the organized ferments, does not for some time make its appearance. In the early stages of gastric digestion, if food has been properly masticated, the fundus serves chiefly for the action of the ptyalin, the pyloric portion, after a brief stage of salivary digestion, being thenceforward the seat of strictly peptic changes. Later (after two hours or more), when the contents of the fundus become acid, the food in the whole stomach is subjected to proteolytic fermentation. The authors also point out the close agreement between their observations and those of Ellenberger, Hofmeister, and Hofgeier on horses, pigs and rats, in which animals the cardiac end of the stomach is lined to a great extent with pavement epithelium and is supplied with "cardiac glands," which are distinguished from the fundus glands by not having an acid secretion; whence, in the absence of gastric secretion the cardiac end is the seat of prolonged amylolysis. This similarity in salivary digestion between animals without acid secretion at the cardiac end, and animals with free secretion there, indicates that the division of the stomach into two regions with functions chemically different during the early stages of gastric digestion, is a general fact. The important difference is the motor one, the comparative absence of peristalsis at the cardiac end and the consequent quiescence of the food there. It need hardly be added that these results emphasize the extreme importance of insalivation.

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* W. B. Cannon and H. F. Day, in *Am. Jour. of Physiology*.

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First Physician: "And was the operation a success?"

Second Physician: "We can't tell. The patient recovered, so we couldn't perform a post mortem."—*Harper's Bazar.*

HOW CHEWING FOOD WELL MAKES SOUND TEETH.

THE primary object of mastication is to break up the food so as to facilitate the swallowing of it and still more important, to insure its intimate admixture with the digestive juices, not only within the mouth but throughout the entire digestive tract. Mastication has, however, other important and far-reaching effects. Thus it promotes the flow of saliva and, when properly performed, secures a due insalivation of the food; it increases the quantity of akalin saliva passing into the stomach; it stimulates the heart and circulation; and it finally influences the nutrition of the jaws and their appendages by stimulating the local blood and lymph circulation.

I cannot too strongly emphasize the fact that before man learned to break up the cellulose framework of his vegetable food by cooking, he was compelled to subject it to laborious mastication. But while thorough breaking up is especially needed for vegetable food when raw, it is also needed for many cooked forms of it, as, for example, solid batter pudding and new underbaked bread, heavy lumps of which passing into the stomach may seriously hamper the work of that organ. Such substances are indigestible, essentially by virtue of their impermeability to the digestive juices, and gain in digestibility in proportion as they are comminuted. The indigestibility of the new bread would appear to be wholly due, not to any peculiarity of chemical composition, but to its tendency to elude the teeth and form a sodden mass impermeable to the digestive juices, while the more powdery stale bread is more easily broken up both in the mouth and within the stomach. Cabbage, again, owes its indigestibility to the fact that it is allowed to pass into the stomach in large masses, while the well-known digestibility of cauliflower and minced spinach is due to the fineness of their division; were cabbage as finely minced as spinach usually is it would be equally digestible.

The more efficiently food is masticated the greater is the salivary flow, and the more intimately is it mixed with the saliva, or, as we say, insalivated. The saliva has apparently no effect on fats; whether it acts on proteids seems more doubtful, though by some authorities the penetration of these by the alkali of this fluid is said to aid in their subsequent digestion; on starch, however, the saliva acts very potently and hence mastication plays a special part in promoting the digestion of starchy foods. Indeed, if only mastication be persisted in long enough, starch may be wholly converted into maltose within the mouth, and it need scarcely be said that it is better for the individual himself to manufacture his maltose in this way than that he should take it ready made for him in the form of one of the many "malt extracts" on the market. Patients are often forbidden starchy food, while they are allowed the maltose which they can quite well manufacture in their own mouths. Provided they be sufficiently insalivated there are few starchy foods which are indigestible, not even excepting the proverbially indigestible new potato. These remarks are especially applicable to children.

In one who has from childhood upward been accustomed to masticate efficiently we generally find jaws large and shapely, the teeth regular and straight, the tongue and salivary glands large, the nasal and nasopharyngeal passages spacious, and the mucous membrane of the mouth and throat healthy.

It is well known that the size of a bone is largely determined by the degree to which the muscles attached to it are exercised. That the jaws do not grow to their normal size if not adequately exercised during their period of growth is strikingly shown by the overcrowding of the teeth which takes place in those brought up on soft foods and this even though there be no contraction of the jaws resulting from mouth-breathing. The dependence of the size of the jaws upon the degree to which they are exercised is also shown by the smallness of the modern jaw as compared with that of primitive peoples, a difference which, as we shall see, is in part congenital and in part due to the comparative disuse of the former. Mastication influences not only the size but also the shape of the jaws through its influence on the size of the tongue, which by pressing against the teeth tends, as Sim Wallace has shown, to expand the jaws; by the pressure of opposing teeth against one another, which has a similar effect; and by the outward pull of the muscles which tends to widen the back of the jaws.

The teeth being developed within the jaw-bones and remaining, even after eruption, in close anatomical and physiological association with them, must necessarily share in their nutritive tendencies. If these bones are efficiently exercised during the formation of the teeth—and my remarks apply especially to the permanent set—the tooth-germs will be abundantly flushed with blood, while the ample growth of the jaws themselves will provide the germs with plenty of room in which to grow and to develop, and the more perfect their growth and development the more resistant should we expect them to be to the ravages of caries.

Who can contemplate the jaw bones of a six-year-old child, dissected so as to display all the imbedded teeth, without being assured of the effect of mastication upon dental development? Fifty-two teeth meet the view; the whole region from the orbital rims to the inferior border of the mandible is literally paved with them, and I can hardly doubt that they collectively weigh more than the bone in which they are imbedded. Surely no one can examine such a dissection without being convinced of the urgent necessity, if the teeth are to grow and to develop normally, of giving the child's jaws from infancy onwards plenty of work to do.

The ample development of the jaws which efficient mastication brings about has a further beneficial effect as regards the teeth in that it enables them to take up their proper places in the alveolar ridges, thus securing all the advantages of a good "bite." These I now proceed to consider. The teeth during mastication, and especially when the bite is good and the food of a kind necessitating vigorous and sustained mastication, are made to move in their sockets both vertically and horizontally; the effect of this is to stimulate the circulation in the tooth-pulp, the alveolar periosteum (bony part of the gums) and the circumjacent mucous membrane of the gum. All this makes for the health of the teeth; not only does it promote the nutrition of the tooth itself and of its bony socket, thus maintaining a firm dental setting, but it also tends to secure a healthy environment for the exposed part of the tooth—that part, namely, wherein caries begins—by maintaining a healthy state of the surrounding, and, indeed, of the entire buccal mucous membrane, as well as of the various secretions which bathe the mouth. Wherefore it is not surprising to find that those who masticate efficiently suffer much less from dental decay and its complications (such as abscess at the root) and disease of the tooth membrane (e.g., pyorrhoea alveolaris and loosening of the teeth) than those who are accustomed to bolt their food.

That all the teeth may be worn down just as we observe in primitive people, even in those who have lived all their lives on the ordinary fare of the moderns, is proved by a case I have under observation. It is that of a man in his fiftieth year who was brought up in Belgium but who has resided in London for the last thirty years. When he came to my out-patient room I was not a little surprised to find that all his teeth were sound—a very unusual occurrence, I need hardly say, among the London poor at his age. In seeking for an explanation I elicited the fact that he was unable to swallow his food without chewing it very thoroughly, and on giving him a moderate-sized piece of bread with the request that he should chew it in the ordinary way I found that he subjected it to 120 separate bites before swallowing it, and in the steady, deliberate way he went to work and in his extensive lateral movements of the jaw he reminded one for all the world of a cow chewing its cud.

The temporals and masseters (jaw muscles) of this man are enormous and the like is no doubt true of the pterygoids; he has well-developed nasal passages, has never suffered from nasal obstruction, while his buccal mucous membrane is unusually healthy for one of his years and circumstances.

May we not attribute this healthy state of the mouth, teeth and nose to the good effects upon them of sufficient chewing? Here is a man who has lived for thirty years in London on the same kind of food as the average poor Londoner, but instead of finding his mouth full of carious, tartar-coated teeth, and spongy, receding, pus-exuding gums, we find thirty-two sound teeth firmly set in healthy gums and all but devoid of tartar.

Harry Campbell, M.D., in *American.*

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FOOD AND DRINK IN THEIR RELATION TO HEALTH.

One of the chief points requiring attention in our diet is the combination of foods. It is in this way we can get out of several what each may lack. Take the case of bread. It is poor in fat, but we have got into the habit of adding butter to it, so that we make it thus a more valuable article of diet. Of potatoes the same remark holds good. Alone they are a very poor food, but we increase their value when we add fat to them. White fish is in the same position; butter sauce is served with it, so that the combination makes the fish more nourishing. In the case of beef or other flesh foods, we take potatoes or bread with them. Here we are adding to the value of our meal, for, as we have seen, meat has no starch, while bread and potatoes (which are poor in flesh-forming foods) supply that article.

Over and above all mere chemical composition of food is the question of their digestibility. A food is of no great use to us, however rich it may be in nutriment, unless we can digest it properly. If it cannot be digested it will be of little value to the body. A food containing less nourishing matter would be preferable, if we can get out of it easily what it contains. A very apt illustration of these facts is seen in the case of cheese. This is an excellent food, because it is rich in fat and casein; but the average person cannot digest any large amount of it. True, a healthy, hungry countryman can take his meal of bread and cheese and digest it, but he is an exception. Most of us take cheese rather as a kind of addition to the diet than as an article by itself. It is taken to "assist digestion," as the phrase goes. Probably it does so by increasing the flow of gastric juice in the stomach. But we can all realize the main point here. It is not the composition of a food alone we have to consider, but the wider question: "Can we digest it easily?" If not we had better leave it alone.—*London Health.*

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HEADACHE.

By William S. Birge, M.D.*

"Oh, it is only a little headache! I am accustomed to them, and it will be over soon." This is the kind of remark which we often hear, yet a headache is not so simple a matter. It is a symptom of very varied and often very grave diseases. Some of them it may be well to enumerate:

CHILDREN'S HEADACHES.

We may suspect that headache is present with the young nursling when its hot temples almost burn the breast upon which they restlessly repose, and whose throbbing arteries thrill the responsive mother's heart, and we know that it must have ached bitterly when we discover that an abscess has formed and broken within the cranium, as the foul matter escapes from the ear.

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* In *Health.*

"I am sick in my head," says the little tot to its fashionable mother, arrayed for the theatre; but the delights to be had by seeing the play are not to be foregone, merely for the complaint of "that child, who is always complaining of something," and the little one is left to the care of Bridget, whose beau, waiting in the kitchen, will be rejoined as soon as her missus is out of the way.

There was great commotion in that house an hour after, for, summoned by a shrill cry, the nurse Bridget—no more feeling than the mother—was drawn unwillingly from the love talk of Pat, to find that the headache which had been neglected was but the symptom of severe acute disease, and that the lovely child was writhing in convulsions, its eyes rolling wildly in their sockets, the jaws fixed upon the protruded tongue, transfixed by the teeth, the mouth foaming, and the whole countenance distorted with agonizing spasms. The nearest doctor, hastily summoned, doubted whether the fit was evidence of scarlatina, measles, or diphtheria, all of which were prevalent at that time, but said, "It might have been avoided had the premonitory headache been regarded and seasonably attended to. It was possible, however, that it was simply caused by a disturbance of the stomach from improper food; headache was very apt to arise from the condition of the stomach. Now, this looks very likely to be the case, from the vomiting of sour mucus and undigested food, which is just commencing. You will very soon find the child relieved. There is so much sympathy in the organism of the young that a disturbance of one function affects all."

Other children have more persistent headaches, and instead of joining in the sports of their playmates, of which they may be very fond, they may be sitting listlessly around, sometimes their heads grasped within both hands, as if they might gain some relief from this slight pressure. This must be seasonably taken in hand, for that precocious child has his brain preternaturally stimulated. Like a worm-eaten apple, he is ripe too soon. Hydrocephalus is the more fashionable modern name for what our fathers called "water on the brain." Therefore, don't neglect the headaches of smart children; they are very apt to be fatal.

There are many other diseases in which this symptom is an early premonitor; all inflammatory diseases of the skin, measles, roseola, scarlatina, nettle-rash, mumps, *et id genus omne,* all of which may be markedly benefited, and some entirely cured, by early attention and treatment of this forerunner.

When your little one has "had such fun" in making mud pies, or in rolling up his snow men from the damp snow in the back yard, and about midnight wakes you up with a roaring earache, first light a pipe of tobacco, and then, placing a bit of gauze over the bowl, inserting the end of the pipe in the ear-passage, place your own mouth over the bowl, and blow the hot, narcotic smoke into the ear. Relief may be thus temporarily obtained, as also by dropping a few drops of paregoric or laudanum into the ear, previously heated in a teaspoon over the lamp. A persistent earache should never be neglected, for it may be the forerunner of an acute inflammation of the middle ear; a physician should always be called.

YOUTH.

Angelica is a sweet girl, and how finely she has grown, and only thirteen last May. She has a headache a great part of the time, and about the first of every month it is much worse, with great fulness of the vessels. Sometimes, lately, she has bleeding from the nose. Putting her feet into warm mustard-water doesn't seem to be of any marked benefit, and latterly she has been getting paler, with a sodden hue. I am somewhat anxious respecting her. What do you think it best to do for her?

My dear mother, the demands of nature

must be paid. Angelica should be taken away from school, kept in the open air, and exercised gently and regularly. Horseback riding is excellent, driving is good, but walking is best of all. Don't give her too much medicine; a saline laxative may be required occasionally, but ripe fruits and a regulated diet will accomplish more. Let her have plenty of fresh air; in fact, adopt, so far as possible, an out-of-door life, and before you have thought of it those pallid lips will have resumed their rosy, inviting richness\ the headache will vanish, and every nerve and tissue will be jubilant with new life and restored energies. This is a critical period in the life of a young girl, when everything should be done to invigorate the system, and yet foolishly fond, vain mothers, just at this budding period of life, allow these giddy-half-formed (both mentally and bodily) children to spend the midnight hours amid the frivolities of badly heated, illy ventilated ball-rooms. Headaches! Why, they are but as zephyrs before the coming tornado.

EYE-STRAIN.

There is another cause of persistent headaches, common to both youth and adult life; this is eye-strain. Many a child that is accounted dull in her school life is afflicted with defective vision. When headache is complained of, more or less constant, and a lack of interest in her studies, the eyes should be examined for a probable cause. Consult a reputable physician. On no account patronize the traveling optician; the eye is too valuable an organ to be trifled with.

WOMANHOOD.

"J'ai une migraine," says the French lady, and the lady of every clime repeats this idea, in language varying with her nationality. Headache is feminine in French, and it accompanies woman through life. Every derangement of the general system is thus marked. Every disturbance in her local functions has this painful evidence. Pain is clearly given to all animals, human and bestial, for the wise purpose of informing them of the presence of danger and injury. Were there no feeling of pain, one might thoughtlessly allow his hand to remain in the fire till, upon examining it subsequently, it would be found to have been burned off. The information would come rather late, if one desired to retain this useful member for a period longer. But pain tells him beforehand of the danger to which it is exposed, and it is consequently withdrawn. The beasts of the field, suffering from cold, endeavor to escape. Shall woman sit down with a headache, which is the announcement of disease, regardless? How many of the miseries of modern womanhood might be prevented were their approach resisted! How much relieved, with a trifling trouble! "Female diseases," names rarely heard by our sturdy progenitors, are now "household words," and a headache is but their fashionable designation. *Obsta principiis,* should be the words, and the beginnings of evil should be resisted. Here, too, we have the origin of those nervous headaches, so rife among the better classes especially. Any little excitement of an unusual nature disturbs the balance of the system; the nervous energies are exhausted, and headache is the accompaniment and result. See how slight an impediment on the railroad track throws the train off! Do you look for greater causes for the accidents which disturb the serenity of the delicate organism of the human frame?

MANHOOD.

"More lordly man," at some Thanksgiving feasts, not stopping from the crisply-browned turkey to the national—almost aboriginal—pumpkin pie, more diabolical, headache-breeding mince pie, or borrowed plum pudding, of Saxon origin, you reck not of to-morrow's throbbing brow! Nor, smacking your lips over the choice wines, you thought little of "next morning."

'Twas "mixing the liquors," you say, that caused your "redness of eyes," your restless stomach, which, last night stuffed to repletion, now refuses to contain the smallest quantity of the blandest drink. The "sick headache," whether the consequence of a single night's excess, or the result of a torpor of the liver, and regurgitating bile from the defective secretion of that organ during a longer or shorter period, be it caused as it may be, there is little pleasure in it.

The tumultuous, persistent, beating headache of the short-necked and plethoric man, which finishes by felling him like a bullock by an apoplectic stroke—so far as the individual is concerned—is a better affair, for the sufferer is then insensible to all pain; but timely means might have prevented it, had he duly heeded the headache. It is all very well to disregard the barking of the dogs in the street, for their yelps are all emptiness, but a headache is not a cur's bark without a bite, but a lion's roar, which immediately precedes the rushing leap of the bloody-jawed King of Terrors.

Live more carefully, my friend. Keep the secretions regular and efficient. Any redundancy keep down. Take plenty of exercise in the fresh air. Above all, stop the "tods," those eleven o'clocks and three o'clocks and night-caps, which are nails in your coffin.

* *

THE NATURE OF SLEEP.

THE *Medical Age* gives us the following on this perpetually interesting and as yet unsettled subject:

The adoption of the neuron theory into accepted physiological doctrine has led to many modifications in existing conceptions. It has furnished a more complete histological basis for legitimate induction, and while much of the reasoning dependent upon its conception may not have greater validity than that which proceeds from a working hypothesis, its successful fulfilment of prediction as this is applied to the explanation of phenomena becomes more and more presumptive of its truth.

The phenomenon of sleep is one which is still circumscribed by more or less incomplete theorizing, a fact which is attested by an admirable article which recently appeared in the *Popular Science Monthly* enumerating the various theories which still hold by virtue of partial explanation.

Sleep is regarded as an unconscious state, and while this may be true of man and the higher animals, it is not so universally. Broadly speaking, cosmic processes such as the alternation of day and night have imposed certain rhythmic conditions on all phenomena, but the subjective equivalent of this process is not necessarily that of sleeping and waking or that of consciousness and unconsciousness. In plant and lower forms of animal life, the physiological equivalents may be of a different kind.

Two opposite theories of the nature of sleep are those of Pflüger and Preyer. Sleep follows general or local fatigue, therefore it is due to exhaustion of the fuel substance or to the accumulation of waste. The chemical changes dependent upon fatigue give us the chemical theory of Pflüger or the accumulation theory of Preyer. For the exhaustion theory there is probably not much real evidence. If this is true, we ought to be sleepy after elimination by means of exercise or excretory effort, and wide-awake after idleness. Nor is the alternative theory entirely free from blemish. If sleep be due to the accumulation of toxic products, as such substances as lactic acid, we should be most wide-awake when the blood is most normally alkalin, and this would be during digestion. Even the phenomena of artificial sleep, anesthesia and hypnosis, seem to be dependent upon explanations other than toxic ones.

The phenomena attending the state of sleepfulness point rather to physical changes in the neurons or dendrites. First sleep is not attained abruptly, it is gradually acquired. Hearing is the last sense to be obtunded and the first to be restored. Sleep is evidently dependent upon the withdrawal of sensory impulses. There was a boy who had one eye and suffered from cutaneous anesthesia; he could be made to sleep by simply closing the lid of the single eye. Certain vascular changes seem to be assured. The dryness of the eyes may be due to diminished circulation in the tear glands. The hyperemia of the skin indicates dilatation of the cutaneous vessels, and anemia of the brain is assumed to be proved beyond question. These facts form the basis of Howell's theory of exhaustion of vasomotor centers. Cerebral anemia though there certainly be, this is not however proved to be more than a concomitant of the sleeping state.

Of the recent histological theories bearing on the nature of sleep, two call for recognition—one that of Duval, and the other that of Lugaro. In Duval's opinion consciousness is supposed to be dependent on the contact of cell-processes in the brain from neuron to neuron. Sensory impulses if they are to change consciousness must have a path for their passage. A single synapse is impassable, and the message from a sense organ is lost to conscious life. Duval's view of the unconscious state therefore includes a conception of the retracting of the processes of the cortical cells. Lugaro's opinion is almost the exact opposite of this. In sleep Lugaro supposes the cells to have made new contacts. This might at first be supposed to imply richer consciousness, but actually this might only be indiscriminate or confused combination, and these fantastic and meaningless associations might be the basis of the stuff that dreams are made of, and so of ultimate unconsciousness. It may be that all these theories contribute their quota of truth, and that while Pflüger, Preyer, and Howell give a representation of the physiological state, the true picture of the slumbering brain includes the extension of some avenues and the diminution of others; that while special sensation avenues are closed, general neuron to neuron connection may become more diffuse and heterogeneous. Like many another fundamental problem, that of sleep may still furnish material for the research of the laboratory experimentalist, as it may supply exercise for the ingenuity of the scientific philosopher.

THE REVIVIFICATION OF THE HEART.

THIS is a touchy topic, in these days of heart failure as one of the commonest emergencies of the street, the court, the car and the home-circle. The *Medical Age* has this interesting résumé on the subject:

The importance in connection with anesthesia of familiarity with every method of reviving the flagging heart lends unusual interest to the records of achievement lately attained in this direction. The results Locke has achieved are wonderful in the extreme. His method consists of irrigating the coronary arteries with a solution of sodium chlorid in the proportion of one-tenth of one per cent. and chlorid of calcium one hundredth of one per cent. in water. To this he adds a little grape-sugar. With this solution Locke, before a medical congress in Turin, revived the heart of a guinea-pig which had been dead several hours. Another observer, Kulcabko, has done better than this, and has shown that the heart can be revived notwithstanding the onset of general rigor mortis. This same observer has taken the heart of a three-months-old child dead of bilateral pneumonia, which was taken from the body twenty hours after death. The coronary arteries were injected with Locke's solution, which had previously been warmed, and saturated with oxygen under pressure. After twenty minutes of apparently useless effort, slow but rhythmical contractions commenced, and the heart continued to pulsate for a good hour quite regularly. Kulcabko claims to have made a similar revivification in another human cadaver thirty hours after death.

A series of experiments by Velich are also interesting as tending to show the extraordinary resistance of the heart to agents that are dangerous to other viscera—for example, extreme cold. A heart which had been long immersed in snow, and which might reasonably have been supposed had lost all power of reanimation, was revived when immersed in Locke's solution. These investigations have not as yet furnished any expedient for reviving the human heart in acute paralysis of the organ. Spina's experiments, however, with Locke's solution injected into an artery near the heart seem to have resulted in resuscitation several hours after apparent death. These experiments have forever silenced the old theory of the susceptibility of the heart to any intervention. The heart is shown to be the most tolerant of organs. They also substantiate the doctrine of Engelmann and Gaskell regarding the automatism of the heart itself.

In the domain of practical therapeutics adrenalin continues to furnish remarkable examples of the power to resuscitate the apparently paralyzed heart. The experiments of Crile, of Cleveland, on blood-pressure have been significant. The control of blood-pressure often means the control of life itself. In his experiments this investigator found that the effect of this remedy is to sustain the blood-pressure in all degrees of shock. By the combined use of artificial respiration and adrenalin, animals which had been apparently dead for fifteen minutes were resuscitated.

ICE FOR NAUSEA.

A PHYSICIAN advances the theory that the distressing sensation of nausea has its seat in the brain and not in the stomach, and that relief may be obtained by cooling the base of the brain. He claims to have tested this often and thoroughly in the case of sick headache, bilious colic, cholera morbus, and other ills in which the nausea is a distressing symptom without a single failure; also, that he once relieved the nausea resulting from cancer of the stomach by the application of ice to the back of the neck and occipital bone. The ice is to be broken and the bits placed between the folds of a towel. Relief may be obtained by holding the head over a sink, or tub, and pouring a small stream of water on the neck.

* *

CUSTOMER.—Give me ten cents' worth of paregoric, please.

Druggist.—Yes, sir.

Customer (absent-mindedly.) — How much is it?

Druggist.—A quarter.—*Exch.*

* * *

THE
Dietetic and Hygienic Gazette
A Monthly Journal of Physiological Medicine

Contributions pertinent to the objects of the Magazine are invited.

Reprints of important papers supplied to authors when request for the same accompanies the MS.

Terseness and perspicuity will be considered cardinal virtues.

It is assumed that original papers sent to the GAZETTE are not to be published elsewhere. If they are to be offered to other publications this fact must be stated by the author when sending his MS.

Matter designed for any particular month should reach the editor not later than the 10th of the preceding month.

Advertisements may be handed in as late as the 20th.

Requests for change of address should plainly state both the old and the new address.

NEW YORK, DECEMBER, 1903

DECEMBER.

Have mercy, Winter!—for we own thy power,
Thy flooding deluge and thy drenching shower;
Yes—we acknowledge what thy prowess can,
But oh! have pity on the toil of man!
Not always Phœbus bends his vengeful bow;
Oft in midwinter placid breezes blow;
Oft tinctured with the bluest transmarine
The fretted canopy of heaven is seen;
Girded with argent lamps the full-orbed moon
In mild December emulates the noon;
Though short the respite, if the sapphire blue
Stain the bright lustre with an inky hue;
Then a black wreck of clouds is seen to fly
In broken shatters through the frighted sky;
But if fleet Eurus scour the vaulted plain,
Then all the stars propitious shine again.
—*Hone's Everyday Book*, 1827.

RATIONAL ANTI-FAT.

MUCH as has been said pro and con on the question of diet in obesity, the subject will not down, which proves that the restricted diets and reputed cures are not all gilt edged or effective. A good many physicians set it down emphatically that the etiology of the ailment is principally its *eat*-iology. In other words, that over-ingestion is at the root of the trouble in every case.

It is no doubt a fact that a majority of those who constantly incline to put on too much *embonpoint* are irregular if not excessive feeders, and lack either the disposition or the will power to restrain their more or less morbid appetites. It is hard to sympathize with persons of mature years who weakly succumb to their one propensity; but this very lack of backbone and self-control is as much a disease as diabetes, and must in all cases be reckoned with. The victim is usually self-deceived, does not realize that he is constantly infringing the laws of dietetics, eats wrong kinds and sometimes inordinate quantities of food, avoids fresh air, and is naturally inclined to be indolent and averse to every form of active exercise. He will neither work nor walk; even refuses to worry. On the other hand there are some who are reasonably careful as to what and how much they eat, and who compel themselves to do a certain amount of muscular task-work, or else go through with some system of set exercises; but all to little or no purpose. They steadily wax fat and kick, if only against fate and the wind.

Pathologists do a good deal of stumbling in their efforts to agree on the etiology of obesity, although they are quite unanimous in admitting that sub-oxidation is a principal factor. Sub-oxidation is both a cause and result of sub-elimination. The metabolism of tissues and surplus food elements is checked midway, as it were, and the incomplete resultants are stored away in the cellular tissues as fat. When an organism either inherits or acquires this tendency nothing short of eternal vigilance and persistent battle can avert the result—the excessive deposit of adipose tissue.

If those who are inclined to too much flesh, and especially to too much fat, will each resolve himself or herself into a committee of one on the state of the union, will thoroughly realize the cause of his affliction, so grievous that it eventually merges into a deformity, there is no reason why he may not do successful battle with this tendency.

First of all, let him face the naked fact that most human beings eat more than they digest or absorb, nature rejecting the surplus by way of some one of the emunctories. The first precaution, then, should be to determine just how much food is required by his system in order that the demands of work, waste and repair may be fully met, at the same time avoiding any considerable excess or indiscretion either as to quantity or quality.

Second, he should realize that his lungs are the crematory of his organism, and that by a really vigorous use of them an abnormal deposit of fat can be effectually antagonized. In extreme cases he must not only utilize his inherited lung power and capacity, but must develop increased breath-capacity by every possible means. To this end all forms of general exercise, from interviewing a sawbuck or a washboard to swinging a golf stick, or fanning a white ball with a tennis racket, are valuable auxiliaries just to the extent that they open the pores and expand the lungs. In mild cases these exercises combined with a reasonable dietary will generally prove sufficient.

But mild cases are not the ones who need special help. They can, if they will, help themselves, and they must do so or suffer the inevitable consequences.

In the severer cases it is the rule that the lungs are small and the heart is weak. This necessarily prohibits sufficient active exercise to be of avail, and, after the diet has been carefully adjusted without, however, carrying it to the danger line of virtual starvation, special exercises tending to develop additional lung power and enhance the breathing function to the highest feasible degree must be assiduously cultivated. For this purpose wood-pile and washtub are homely but effective methods; walking is only passively good, but a little dog-trot or run of a few blocks at first, and cautiously increased from day to day, will be much more effective. Of course city residents will not take to saw-buck or rubbing-board, and women will not get down from their dignified perches to practise the dog-trot.

Therefore something else must be found. Among the most effective of available exercises for indoor people are ladder and rope climbing. In both cases the arms alone are to sustain the body weight. Any ordinary ladder twelve or fifteen feet long, with rounds or rungs that can be readily grasped in the hand, is to be leaned against a building and climbed back and forth, hand over hand, from the *under* side, a dozen times a day. When ladder facilities are not available, the rope fastened in the ceiling by a substantial staple and ring and provided with knots at moderate distances apart is the next best device. A cotton clothes line, braided "four-strand," as the old lashmakers would say, makes a good rope. At first the weak-hearted climber must not attempt too much, but must go higher and higher and more frequently, to the ceiling and back, fist over fist, the legs dangling in air. It is fairly wonderful to watch the results that can be attained by a few weeks of this exercise. It develops the chest, brings the flabby abdominal muscles into vigorous action, makes the subject breathe and acts as a "sal-eliminant" with a vengeance.

The cool morning bath, with vigorous friction, should never be omitted, and free water-drinking on rising and retiring but not at meals may be safely indulged. The diet itself should be rather dry, and must be thoroughly masticated. Tea, coffee, beer and spirits of all kinds must be religiously abstained from. Lean flesh is a proper food; bread should be at least twelve hours from the oven, and only moderately indulged; sweets of all kinds are to be eschewed, and the two-meal-a-day system is better than any more frequent indulgence. Fruits and watery vegetables are not only allowable but desirable, and lastly, not more than eight hours' sleep per day should be indulged.

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RAW FOOD AND RAW FAD.

A CORRESPONDENT to the *Notes and Queries* department of the GAZETTE brings up the question of raw food, which same has been already briefly adverted to in these columns from time to time. The fad seems to be growing. For a time it seemed to have but a single advocate in the prints and advertisements; but his success has stimulated others to enter the field. At least one vegetarian society has become a proselyte, and one of the "health" journals of the day is giving it outspoken endorsement.

We are inclined to class it as a *raw fad*, for the reason that the effort to "get back to Nature," so much in vogue with all the radicals and visionaries, has a hundred centuries of retrogression and undoing to accomplish before it can cut much of a figure.

In the sense that it is put we are not the children of Nature that we once were. We no longer roam the woods by day, sleep in open caves or in the limbs of a tree at night, live on barks, roots, berries and nuts, and drink on all fours, from running brooks. We wear clothes, and a good deal too many of them, instead of hair, and we live in air-tight houses, huddled together in great cities, where we breathe each other's breath and live on carbon dioxid, nicotin and sulphureted hydrogen instead of oxygen. When it rains we stay indoors, or wear rubber clothes, and so get no more tonic rain baths.

When we can go back, say a hundred thousand years, toward barbarism we may be adapted to a diet of oats as the horse eats them, hulls and all, nuts without waiting to pick out the kernels with our silver picks, and roots without washing off the grit.

This evolution backward—we might call it devolution—has never occurred in the history of the race and probably never will. It isn't in Nature's line. She goes the other way.

Of course we shall take certain things in their uncooked state. Fruits, nuts, berries, and many vegetables are both more palatable and more digestible uncooked. In fact, there is no doubt but we cook some things "to death," as the phrase goes. For example, most people want their fruit served in the form of jellies and conserves, which pretty effectually ruins their dietetic value. Heat and sugar combine to rob fruit of all its refreshing and health-giving properties. And the cooking of the cereals is carried to extremes, especially in connection with the additions of sugar, shortenings and salt. The blandest and best of the cereal family can easily be made obnoxious to the digestive processes by the addition of flavoring substances and condiments called for by custom and depraved palates.

It will be a great reform when we learn to acquire simpler and more natural tastes, since relish is a prime factor toward the digestion of any article of diet. But this does not call for the adoption of ungelatinized and comparatively insoluble starch-grains and raw-wheat, barley and buckwheat puddings as a standard diet.

Think of a quick lunch of raw navy beans, or a Delmonico dinner of raw corn on the cob!

No, not for Joseph, until the millennium and Dowie have failed as "restorationists."

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WHAT TO READ IN 1904.

This is the time at which most people plan as to what they shall subscribe for and read during the coming year. A majority will no doubt welcome a word of advice or suggestion.

Of course you are a subscriber to the Gazette, or else you are reading a copy that belongs to a neighbor, or lies on the table of some public library, reading room or educational institution, for we reach many such. If by any mishap or negligence you are not on our list, we abjure you to lose no time in getting there. Then cast about you for a selection of other journals that will give you the variety you need. Put at the head of the list the *Literary Digest*. It has something in every number for every member of your family no matter how varied their tastes and needs. For number two let it be the *Outlook*. Some of you will criticise us for not placing it first!

In the line of fiction the list is almost endless; but those most loudly heralded and most thickly padded with advertising pages are not necessarily best suited to your wants.

If not already familiar with *Lippincott's*, think twice before you pass it. It is every month full of meat; does not favor the "to be continued" story style, and is always entertaining. With these three and the GAZETTE you will keep in touch with health and the whole world.

The doctor's wife and every other wife who is at all domestically inclined should add to the foregoing *Good Housekeeping, Home Science Magazine,* and *Table Talk,* one or all of these, according to her taste, ambition to advance and the state of her pin money account. They are all ably conducted, replete with facts and fancies that will help to raise her bread and lighten her spirits. Each will aid to elevate her ideals of living, as well as to make less burdensome the myriad of housewifely cares that no mortal has ever been able to enumerate.

* *

CONCERNING RADIUM.

IN a carefully prepared paper on the results of experiments made with this newly discovered and as yet only partially investigated mineral, used as a remedy in disease, Dr. Samuel G. Tracy, of this city, sums up as follows:

1. The discovery of radium may make it necessary to change our theories of the old hypothesis about matter and the conservation of energy.

2. Radium may possibly open up the way for a cheaper and more wholesome lighting of houses by phosphorescence.

3. Radium is a practical agent to differentiate genuine gems from artificial.

4. Radium is a useful agent to kill bacteria.

5. Radium may be considered a valuable agent for the treatment of lupus, cancer, tuberculosis; and a possible agent to improve the eyesight and overcome partial blindness No doubt, later discoveries will show it to be of service in other diseased conditions.

* *

OZONE PURIFICATION.

THE new ozone process of water purification, described by Prof. Proskauer before the Chemical Congress at Berlin, may be the solntion of the problem of water supply in all cities near great rivers and lakes —and that includes most of the principal cities of the world.

According to Prof. Proskauer, sterilization by ozone is cheaper than sand filtration, and it kills disease germs, while filters merely obstruct their progress. The system is no longer an experiment, for the town of Wiesbaden has a plant which is purifying 350 cubic meters of water per hour, or 2,219,016 gallons per day—an ample supply for a city of 30,000 inhabitants.

With such a system New York could draw unlimited quantities of pure water from the Hudson, St. Louis from the Mississippi, Chicago from Lake Michigan, Cleveland and Buffalo from Lake Erie, and Cincinnati and Louisville from the Ohio.

Department of Hygiene.

WITH SPECIAL REFERENCE TO STATE AND PREVENTIVE MEDICINE

SEASONABLE AND SENSIBLE HINTS CONCERNING PNEUMONIA.

THE *Bulletin of the Health Department* of Chicago for the week ending Nov. 7 contains some timely talk concerning this prevalent and fatal disease, a disease which destroys nearly twice as many lives every year as the "Great White Plague"—consumption:

Pneumonia, like so many other of the ills that modern mortal flesh is heir to, is a disease of civilization—and Civilization itself is a Disease, according to the dicta of a modern school of philosophy.

Pneumonia is a disease begotten of over-housing, over-crowding, over-clothing, over-eating and drinking, over-coddling—all the hygienic defects of civilized life which make for the weakening of natural vital resistance to the attacks of the myriads of invisible foes that are harmless to the normal healthy individual, whose normal healthy blood is constantly producing substances antagonistic to the activity and the poisons of the disease-producing organisms.

Considered from this viewpoint, attempts to restrict the ravages of pneumonia seem to be a hopeless undertaking. And yet, hopeless as it seems, it is clearly the duty of the sanitarian and the worker in the field of preventive medicine to do what in him lies toward education in the precepts of healthful living.

A simpler housing, with abundant facilities for the access of sunshine and fresh air, and space enough for each individual; a simpler raiment, which shall preserve the natural power of the skin to resist the effects of draughts and chills and "colds;" a simpler dietary, which shall not overtax the digestive system, and less cookery so that the teeth may have sufficient exercise to prevent their premature decay; more exercise in the open air, and, in general, a resort to the simpler and more natural modes of life to which each and every one of us was born, and out of which each and every one of us is removed as promptly as civilization can act.

There is already a hopeful tendency in this direction. As Mr. Carpenter points out: "The Nature-movement, begun years ago in literature and art, is now, among the more advanced sections of the civilized world, rapidly realizing itself in actual life * * * and developing into a gospel of salvation by sandals and sunbaths!"

When this gospel, these good tidings, have become active in the daily life, pneumonia, consumption and all the other unnumbered ills, the results of our present stage of civilization—shall lose their terrors. To the preaching of this gospel pulpit and press, physician and layman should address themselves both by precept and example..

And in this connection it should be borne in mind that whatever is done for the restriction of consumption is also done for the restriction of pneumonia. The general principles underlying the "anti-tuberculosis crusade" are equally applicable to the fight against this newer "Captain of the Men of Death."

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WHY SEA BATHING IS GOOD FOR YOU.

One of the most interesting and instructive papers read before the New York Medical Society last month was Dr. R. Abraham's address on "Sea Bathing as a Cure for Skin Diseases." Dr. Abrahams, who is adjunct dermatologist of the Lebanon Hospital, instructor in physical diagnosis of the Post-Graduate School and Hospital and district physician of the Mount Sinai Hospital of New York, has made experiments in the treatment of skin diseases by sea bathing for two seasons, and in his paper recommended it as "a reliable and curative agent in certain skin affections."

He made experiments in cases of pityriasis versicolor or "blotches," herpes tonsurans maculosus et squamosus, which is the very long medical name for "ring-worm," pruritis senilis, commonly known as the itch of age, and chronic eczema, all with remarkable results.

"Assuming that the therapeutic virtue of sea bathing rests in the chemical composition of the sea water, I directed a few of my patients who suffered from these diseases of the skin to bathe in tanks filled with ocean water such as are found in some of the regular Russian and Turkish bathing establishments—tanks of water which are advertised 'as fresh as the sea but safer,'" said Dr. Abrahams, "but from these experiments I failed to get any appreciable results. In view of this my conclusion is that bathing in the sea, besides the inherent properties of the medicated water, derives additional value from some other sources. These are, I believe, first the longer immersion which is possible because it is more agreeable in the sea. Second, the pounding of the billows, which rubs the water more thoroughly into the skin. Third, the exposure to the sun in the interval of the dips, which permits the solids of the water to dry into the skin. Fourth, the rolling on the sand of the beach which wonderfully helps to remove scales and other pathological debris from the skin, and thus affords the water a better chance to penetrate the affected areas.

"A girl aged twelve had an attack of ringworm in the beginning of June this year. The eruption extended over the trunk and extremities. First, there appeared small, red, flat lumps. Then in two days, the papules turned into small patches. Both lumps and patches were covered with oily scales. The exfoliation began at the center of each patch, and gradually ended at the circumference, leaving the point from which it started pale and depressed. Shortly the typical rings formed, from which occurrence and peculiarity the disease is commonly known as ringworm of the body. The itching was intense and distressing.

"I suggested sea bathing for no other reason than pure experiment. The child took ten baths in ten days and got rid of her trouble. In this case no medicine was given internally or externally. Sea bathing alone got the credit of the cure.

"A chronic case of 'blotches' which yielded to the sea bathing treatment was that of a young man, a lawyer, twenty-five years old. For three years he had been afflicted by the disease. The blotches extended front and back of the trunk, neck and arms. His ability to secure the best advice and his anxiety to get rid of the disfigurement prompted him to try every remedy prescribed or suggested, but nothing made a cure or even for any appreciable time afforded relief. Two Summers ago I advised sea bathing. After the patient had taken a dozen baths the most disagreeable affection disappeared and there has been no return of any of the symptoms.

"Although some authors hold that 'blotches' is a one-night-cure disease, cases come up from time to time that defy all care and the best of hitherto known remedies. They persist in returning in spite of your best efforts. These cases are like will o' the wisps. For these stubborn forms I have found that sea bathing is a remedy par excellence.

"A man about forty-five years old suffered from gout and rheumatism for ten years. Within the last year he gradually developed dry eczematous patches on his shoulders, legs and hands and in the lumbar regions. The indurations, furrows and color of the skin were typical of chronic eczema. The itching was so terrible that both rest in the day and sound sleep at night were unknown for months.

"Every form of treatment was employed without avail. Sea bathing was finally recommended. Two baths a day were taken for a period of ten months with complete satisfaction to the sufferer. While traces of the old foe are left in the slightly perceptible hardness of the affected skin the troublesome affection has disappeared.

"Sea bathing proved to be a veritable godsend in a long-standing case of pruritis senilis, or the itch of the aged. The patient was a man of seventy. The distress and misery of that old man were pitiful. In his case, as in many others of that class, no eruption was visible nor any cause discoverable except a susceptible, irritable skin.

"Daily ocean dips were advised and taken during the entire Summer, with the result of entirely freeing the patient of the distressing disease.

"There are many cases as remarkable and I have merely chosen these as typical."—*N. Y. American.*

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MYSTERIES OF PHOSPHORESCENCE.

Animal phosphorescence is one of the most surprising and least understood of Nature's phenomena. The pale, bluish-white light of the glowworm has been found by naturalists to be dependent upon the motion of the insect's body or legs; from this it would seem that the phosphorescence depends upon some nervous action, regulated at pleasure by the insect, for it has the power of obscuring it entirely. If the glowworm be crushed and the face or hands rubbed with it, luminous streaks like those produced by phosphorus will appear. They shine more brightly in oxygen gas and in nitrous acid.

The power of emitting luminous rays belongs to several varieties of fly and three species of beetle of the genus Elater. One of the most brilliant of these is the great lantern fly of South America, which gives enough light to enable a person to read by the rays from a single insect. Numerous classes of these flies are found in Surinam, where they illuminate the darkness in a most remarkable manner.

In some of the bogs of Ireland lives a worm which gives out a bright green light —a fitting color for the Emerald Isle. There are many other kinds of insects which become luminous in the dark.

Yet there are many curious instances of phosphorescence in dead animal and vegetable matter, the lobster among crustaceans, the whiting among fishes, and decayed wood being striking examples. Their emission of light seems to depend, however, not upon putrefaction, for as this progresses their luminosity diminishes, but upon certain unknown atmospheric conditions. This phosphorescence of decayed matter has been regarded as somewhat different from the slow combustion of phosphorus, but upon examination all the chemical conditions are found to be the same.

The strange phosphorescent quality of some plants and flowers is not exactly the same as that possessed by animal matter, but it is as little understood. It seems to be an absorption of light and a subsequent liberation of it. If a nasturtium is plucked during sunshine and carried into a dark room, the eye, after it has reposed for a few moments, will discover the flower by the light emitted from its leaves.

The phosphorescence of the sea is due to a living animal, which gives out its light under nervous excitement, as when it is stirred by the motion of a passing vessel.

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ORGANIC IRON MEDICATION IN SECONDARY ANEMIAS: A CLINICAL AND HEMATOLOGICAL STUDY.*

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AND

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A GREAT deal has been written in recent years on the value of the various new organic iron compounds in the treatment of anemia, and our only excuse for the presentation of this report is that every new series of clinical observations, made with due conservatism and accurately recorded, is of value in confirming or disproving some fact or theory in medicine.

The problem of treating secondary anemias is an interesting one. In each case there is, in the first place, the primary factor, be it loss of blood through hemorrhage, spontaneous or traumatic; or be it the lowering of the functional activity of the blood-forming organs wrought by disease somewhere in the body, or by the action of toxins; or the direct destruction of the red cells and their hemoglobin in the circulating blood by some more violent toxic agency.

The first question, therefore, is how to remove the primary factor, or, at least, how to arrest its influence on the state of the blood. The second is, how to improve the state of the blood, so as to give it a new lease of life by increasing the amount of hemoglobin—that prime agent of oxygen exchange—and the number of red cells, the carriers of this agent.

In each individual case of secondary anemia there are different obstacles to be overcome as regards the primary factor, and therefore the treatment of the primary disease varies; but the therapy of the secondary condition is alike in all cases. Iron and its assistant, manganese, are the specifics to which we must have recourse—of that there has long since been no doubt—but the form of iron that should be used for this purpose is another question.

The problem as to the exact site and mode of absorption of iron which is administered therapeutically has occupied pharmacologists for a number of years, and a great deal has been written on the subject, and yet there is still no agreement even as regards some of the essential points of this question. Is iron absorbed at all in the inorganic state? If so, in what form and in what quantities? What form of iron is most readily absorbed? How does iron act if it is not absorbed, or if only infinitesimal amounts, totally inadequate for the needs of the body, enter the plasma and are taken up by the molecules of hemoglobin? All these questions have been discussed and rediscussed, but as yet, as Hammarsten says: "The action of the iron salts is obscure."

In a clinical article we are not called upon to go into details in discussing the various phases of the question as to the absorption and mode of action of the iron salts, but a few words may be said to show the present status of the subject.

Whether iron compounds of the inorganic group are absorbed at all, is a question of subsidiary interest in the present inquiry. There are two diametrically opposite views on this question. Bunge and his pupils say that inorganic iron salts are not absorbed in any amount, however small, and that Blaud's pills and similar preparations act only by combining with the hydrogen sulphide and the alkalin sulphides of the intestine, thus preventing the decomposition of the organic compounds of iron existing in our food, especially in vegetables, and so permitting the absorption of these compounds into the blood. The opposite view is held by Quincke and others, but the balance of evidence is in favor of Bunge's hypothesis. The well-known fact that enormous doses of iron are required to produce appreciable effects in chlorosis supports this theory. Thus, if a woman takes

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six grains of reduced iron three times a day (eighteen grains daily), it will take weeks to restore her to the normal condition if her hemoglobin has fallen to 50 per cent. And yet the entire amount of iron in the blood of a normal woman of average weight is only thirty grains, so that if the inorganic iron were absorbed, as some observers claim, a few days would suffice to restore the balance of hemoglobin and red cells.

On the other hand, organic iron compounds, especially such as are composed of iron with a proteid substance that resembles as closely as possible the proteids of the food as they occur in the intestine (*e.g.*, peptones), are undoubtedly absorbed into the blood in sufficient amounts to produce a comparatively speedy therapeutic effect in anemia, without injuring, as the inorganic compounds often do, the epithelial covering of the stomach and intestin, and thus causing gastro-intestinal symptoms summarized under the two general headings of dyspepsia and constipation.

It is these advantages that led to the general adoption of the iron peptonates, albuminates, etc., as the remedies to be preferred in the treatment of anemia. In this report we deal with one of these preparations, that known as pepto-mangan, Gude, in which iron and manganese exist in the form of peptonates. Gude's pepto-mangan has been used for a long time at the Columbus Hospital as a matter of routine in all anemic patients during convalescence from prolonged illness or from operations. The satisfactory results which have been obtained with this preparation have been noted, in a general way, by the visiting staff as well as by the house physicians, but until now we had made no study of the exact results, as attested by the examination of the blood before and after the initiation of the treatment.

In order to determine more accurately what could be expected of pepto-mangan in secondary anemias as they occur in a general hospital, we studied a number of cases in the medical, surgical and gynecological wards. Of these a majority were in the services of Drs. Ramon Guiteras and Egbert H. Grandin, visiting surgeon and visiting gynecologist to the hospital, and we take this opportunity to acknowledge their courtesy in permitting us to pursue this work.

About forty cases were studied from October 1, 1902, to March 1, 1903, in as thorough manner as possible, with a view of determining the action of the preparation to be tested. Unfortunately, for reasons beyond our control, a great many of these patients left the hospital, believing themselves sufficiently improved, without giving us time to try the remedy for a sufficient period to obtain definite results. We present, however, ten cases in which the medication was continued for three or more weeks, usually for about a month in each instance. In each of these cases blood-counts were made before beginning the treatment, as well as after it had been discontinued. The cases are given below, simply as they appeared in our notes, and they were not selected particularly on account of the results noted, but merely because they were the cases studied more completely than the rest.

REPORT OF CASES.

Case I.—Mrs. R. F., Italian, 42 years of age, was admitted to the hospital on December 4th. Diagnosis, ovarian cyst. Symptoms of secondary anemia. She was operated upon December 5th and the uterus was removed through the abdominal incision, as it was found to be the seat of a fibroid tumor which had degenerated into sarcoma. She was discharged cured on January 10, 1903. During her convalescence she took one tablespoonful of pepto-mangan (Gude) three times daily. The examination of the blood showed the following findings:

December 4th, hemoglobin 50 per cent., reds 3,350,000, whites 15,000. December 18th, after hysterectomy, hemoglobin 39 per cent., reds 2,300,000, whites 16,000. January 10th, hemoglobin 70 per cent., reds 4,250,000, whites, 7,800.

The patient left the hospital in an excellent condition, showing no signs of anemia or debility.

CASE II.—A. P., Italian, 25 years old, admitted November 17th, with stricture of the urethra and signs of marked anemia. November 24th, perineal section and internal urethrotomy for stricture. There was considerable hemorrhage during and for a few days after the operation.

Examination of blood: December 12th, eighteen days after operation, hemoglobin 68 per cent., reds 3,700,000, whites 10,429. January 4th, 1903, twenty-eight days after beginning the use of pepto-mangan, hemoglobin 95 per cent., reds 4,800,000, whites 8,400.

Pepto-mangan was given in doses of one tablespoonful three times daily from December 13th to January 10th. The patient was discharged cured on January 10th, in good general condition.

CASE III.—M. S., Italian, 25 years old, admitted October 14th. The diagnosis was perinephritic abscess and tuberculous knee-joint, and the patient showed pallor of the skin and mucous membranes. He was operated upon by lumbar incision for perinephritic abscess on October 24th, and his knee-joint was excised December 18th.

Examination of blood: December 13th, 1902, three weeks after first operation, hemoglobin 70 per cent.; reds 3,104,000, whites, 5,888. December 20th, 1902, two days after excision of joint, hemoglobin 70 per cent., reds 2,750,000, whites 24,000. January 10th, when discharged, hemoglobin 85 per cent., reds 4,640,000, whites 5,150.

This patient was given pepto-mangan for three weeks from December 21st to January 10th. He was discharged improved in general health. The anemia was very marked on December 20th after the second operation, and the increase in the blood cells and hemoglobin was very satisfactory for a case of this severity after three weeks' treatment.

CASE IV.—Ida M., 5 years old, Italian parents, born in the United States, was admitted November 30, 1902, suffering from typhoid fever. December 12th, after the convalescence had set in, the child was extremely anemic-looking, with pale skin and pale, bluish-red mucous membranes. Pepto-mangan was ordered, a teaspoonful three times daily, on December 12th. Eight days later the first blood examination was made, two weeks later, the second. The findings of the pathologist were as follows:

December 20th, hemoglobin 75 per cent., reds 4,720,000, whites 30,000. January 8th, hemoglobin 85 per cent., reds 4,960,000, whites, 9,200. The patient was discharged cured on January 8th.

CASE V.—Cesare C., aged 25 years, single. Had been operated upon one year ago in South America for vesical calculus and urethral stricture. Was admitted December 3, 1902, complaining of inability to urinate and continuous dribbling of urine through a suprapubic fistula. December 13th, perineal section without a guide and internal urethrotomy were performed. The patient was weak and anemic after the operation, so pepto-mangan, a tablespoonful three times daily, was prescribed on February 5, 1903. He made a good recovery from the perineal operation, but the suprapubic fistula persisted. After twenty-two days' treatment with pepto-mangan he was discharged improved.

Examination of blood: February 6, 1903, hemoglobin 80 per cent., reds 3,878,000, whites 4,250. February 28, 1903, hemoglobin 85 per cent., reds 4,516,000, whites 4,600.

CASE VI.—M. C., aged 44 years, widower, has had urethritis four times. On admission he gave a history of having suffered from frequent and painful micturition for fifteen months. An examination showed a chronic urethral discharge, a urethral stricture, 12 F. at about 6½ inches from the meatus, and a tumor in the right umbilical region simulating a very large kidney.

The prostate was much enlarged and very tender. The urine was of a specific gravity of 1,020, acid in reaction, contained no sugar and no albumin, but numerous pus cells. In addition to treatment by irrigations and by dilatation of his stricture, he received pepto-mangan, a tablespoonful three times daily, from February 4th to February 28th, to combat a marked anemia.

Examination of the blood: February 5th, hemoglobin 45 per cent., reds 2,149,000, whites 9,760. February 28th, hemoglobin 55 per cent., reds 2,460,000, whites 6,890.

The patient improved as regards his urinary symptoms, but his anemia did not show much amelioration after twenty-three days of iron therapy. At the time of writing he was to be prepared for a second operation, an exploratory nephrotomy for his renal tumor.

Case VII.—A. B., Italian, aged 58 years, married, was admitted to the hospital on November 24, 1902, complaining of symptoms of enlarged prostate which had been giving trouble for six months. He had lost considerable flesh and strength and looked very anemic. He was operated upon December 27th. His convalescence progressed satisfactory as regards his urinary symptoms, but the anemia persisted, and on January 14th he was put on a tablespoonful of pepto-mangan three times daily. After twenty-five days of this treatment he was discharged somewhat improved as regards the anemia. The report of the two blood examinations before and after the use of pepto-mangan was as follows:

January 15, 1903, hemoglobin 55 per cent., reds 2,940,000, whites 8,300. February 9, 1903, hemoglobin 65 per cent., reds 3,110,000, whites 8,100.

Case VIII.—A. D., 8 years old, schoolgirl, on admission to the hospital, September 22, 1902, complained chiefly of abdominal pain, general weakness, and enlargement of the abdomen. On September 24th the abdomen was opened, and the peritoneal cavity found to contain a large number of tuberculous foci on the peritoneum and a considerable amount of serous fluid. The diagnosis of tuberculous peritonitis was made.

On January 27, 1903, the abdomen was again found full of fluid, and was opened for the second time. On January 28th the patient was given pepto-mangan, two teaspoonfuls three times a day, for twenty-nine days, at the end of which time she was discharged. The anemia had not improved. The reports of the blood examinations were as follows:

January 29, 1903, hemoglobin 75 per cent., reds 3,920,000, whites 10,000. February 27, 1903, hemoglobin 75 per cent., reds 3,890,000, whites 7,200.

Case IX.—G. P., Italian, 28 years old, was admitted to the hospital on January 13, 1903. For the last four months he had noticed a swelling of the left testicle. He had his scrotum tapped ten days before admission, and about five ounces of a clear fluid had been withdrawn. An examination showed a pyriform swelling about eight times larger than the normal testicle, with an apex above the external ring. Its upper part was hard, without fluctuation, dull on percussion, no impulse on coughing and non-translucent. Its lower part fluctuated and was translucent. On January 19, 1903, the testicle was removed, the diagnosis of sarcoma of the testis being afterward confirmed by microscopical examination. On February 1st the patient was given pepto-mangan in doses of a tablespoonful three times daily, and this medication was continued until February 28th, when he was discharged with a well healed wound and improvement of anemia. The reports of the blood examinations were as follows:

February 5, 1903, hemoglobin 65 per cent., reds 2,362,000, whites 5,900. February 28, 1903, hemoglobin 70 per cent., reds 3,800,000, whites 7,000.

Case X.—L. M., born in the United States, aged 25 years, was admitted to the hospital January 3, 1903. She had been married four years, had had one child and one miscarriage. No venereal history. One month before admission she was exposed to cold during menstruation, and the flow ceased. One week before admission she began to flow steadily and still continued to do so, at her entrance to the hospital. She has had severe pelvic pains for three weeks. The uterus was found retroflexed, and a large doughy mass was found on the left side posteriorly. On January 9, 1903, she was operated upon by posterior vaginal section. A suppurating hematocele originating from a ruptured extrauterine pregnancy was found in the left broad ligament. She was given pepto-mangan in doses of a tablespoonful, three times daily, from January 10, 1903, to February 9, 1903. The patient was discharged cured on February 9th. The reports of the blood examinations were as follows:

January 24th, hemoglobin 65 per cent., reds 3,150,000, whites 9,200. February 9th, hemoglobin 75 per cent., reds 4,318,000, whites 6,100.

On reviewing the results obtained, we find that, considering the diversity of cases studied under the influence of pepto-mangan, the ratio of increase in the hemoglobin and red cells was very uniform. In one case only (VIII.) of the ten studied in detail, there was no improvement noted in the anemia, and that was a hopeless case of tuberculous peritonitis, in which, however, the patient was discharged improved as regards her abdominal symptoms after operation. In another case (VI.) the improvement was but slight, but this was a patient with renal tumor, and a marked cachexia. These two cases were as severe tests as an iron preparation could be subjected to, and perhaps the paucity of the results is not to be wondered at in these instances.

In the remaining eight cases reported here the results were very satisfactory for the short duration of the treatment. There is no question that a few weeks longer would have brought most of the "improved" cases up to the point where we could say that the anemia was "cured." But unfortunately our patients belonged to a class in which every day spent in a hospital counts in privations for others who depend upon them, and we have often been obliged, upon the insistent demands of the patients and their friends, to discharge the convalescents at the earliest possible date.

In addition to the forty-odd cases which we studied this winter, pepto-mangan has been used in the hospital for over two years in anemic convalescents, with uniformly satisfactory results. In none of the cases under our observation did any untoward symptoms accompany or follow the use of this preparation. In no case did constipation, nausea, headache, or digestive difficulties follow its administration.

The results recorded here correspond with those obtained with the use of pepto-mangan by Loomis, Van Schaick, and von Ramdohr, of New York; Peterson, Perekhan, Doehring, of Chicago; Wolffe, of Philadelphia; Summa and Bauduy, of St. Louis; Von Ruck, of Asheville, N. C.; McGuire, of Richmond, Va.; Frieser and Pohl, of Vienna; and Fasano, of Naples.

On the whole, therefore, we have found pepto-mangan a very satisfactory and efficient hematinic in secondary anemias.

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SOME IMPROVEMENTS IN THE METHOD OF LOCAL ANALGESIA.

A CLINICAL lecture with the above title, delivered at University College Hospital, London, July 11, 1903, by Arthur E. J. Barker, F.R.C.S., Eng., appears in *The Lancet* for July 25, 1903.

We extract from this interesting lecture the following:

"Several points must be borne in mind, among them the mechanical and physical difficulties in infiltrating all the nerves supplying an extensive field of operation. To inject the whole area so as to reach all its nerves would mean in many cases the use of much more of the toxic drug than is necessary, and in some cases so much as to be dangerous."

The author refers to certain observations by Braun, of Leipsic, on a method of overcoming the drawbacks incident to the usual mode of producing local anesthesia. This method is based upon the old experience that *anything which retards or diminishes the circulation of the blood in a part enhances the potency of the analgesic agent.* Experiments were made with Adrenalin, a very small quantity of which was injected with B-eucain (or cocain) into the author's own arm, and subsequently into the arms of numerous patients. After the lapse of twenty minutes the part was quite blanched and wholly insensitive to pain, remaining so for about two hours. Adrenalin, alone, used in this way had no analgesic effect, while the results of the use of the combined solutions of B-eucain and Adrenalin were far superior to those produced by B-eucain alone.

The most convenient way to prepare the solution is as follows: Powders each containing 0.2 gramme (3 grains of B-eucain and 0.8 gramme (12 grains) of pure sodium chloride are kept in thick glazed paper, ready for use. When needed, one powder is dissolved in 100 Cc. (3½ fluid ounces) of boiling distilled water, and 1 Cc. of Parke, Davis & Co.'s Solution Adrenalin Chlorid is added when the fluid is cool. The solution is left in the Jena glass beaker in which it has been boiled, which is carefully covered and placed in a vessel of warm water to keep it at blood heat.

The injection is made by means of a simple syringe of glass and metal of 10 Cc. capacity, with rubber washers, which can be sterilized by boiling.

To illustrate his method the author describes in detail the performance of an operation for the radical cure of inguinal hernia. The hernia is first reduced and the index finger is thrust into the external ring as far as possible. Along this finger the needle is entered and the inguinal canal is filled with 10 Cc. of the solution. An endeavor is made to inject it all around the neck of the sac so as to reach the genital branch of the genito-crural nerve. The needle is then entered at the external end of the line of incision in the skin, and is made to infiltrate the *superficial* layers of the latter down to the root of the scrotum, making the resulting wheal at least an inch longer at each end than the incision is to be. Injections are then made at a point half an inch to the inner side of the anterior superior spine of the ilium, the needle being thrust towards the ilio-inguinal nerve, and at a point about one inch above the middle of Poupart's ligament where the ilio-hypogastric nerve is most conveniently met. Then the thigh is flexed and another syringeful is injected along the ramus of the pubis and the root of the scrotum or labium.

It is necessary to wait twenty minutes after the last injection for the full effect of the Adrenalin to develop. The whole field of operation should be blanched and insensitive to pricks but not to touch—analgesia, not anesthesia. The incision may then be made with confidence that no pain will be felt. The absence of oozing of blood is noticed. Only large vessels bleed at all.

Success depends upon a mastery of the principles, and practice in the details of the method. It is not enough to inject the fluid under the skin generally. Due regard must be had to the position and of course of the nerves supplying the structures to be dealt with. The Adrenalin compound, by slowing the circulation through the part prevents the anesthetic agent from being rapidly washed away. The writer has used this method in thirty operations, including the radical cure of hernia, strangulated hernia, orchidectomy, removal of varicose veins, psoas abscess, loose body in knee, tumor of neck (actinomycosis), colotomy, Thiersch skin grafting, and cystic adenoma of the thyroid.

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ARTERIAL TENSION IN MENTAL AND NERVOUS DISEASE.

Duncan Greenlees (*Caledonian Med. Jour.*) considers it surprising that so little notice is taken in text-books of the influence of circulatory diseases on the mind. Admitting that heart disease does produce irritability, moroseness or suspiciousness in sane persons, it is reasonable to argue that such symptoms may become exaggerated until the patient becomes gradually insane. Whether the psychic phenomena result from changes in the quantity or quality of the blood has not been determined. On the other hand, abnormal mental manifestations induce functional disorders of the circulation which may end in organic disease. Pleasurable sensations are said to coexist with vascular dilatation and low tension, while disagreeable sensations are apt to be accompanied by vascular constriction and high tension.

That continued mental excitement does produce hypertrophy, dilatation, or even valvular incompetence is supported by the fact that heart disease occurs more frequently among the insane than the sane, often developing after the patient has been admitted to the asylum. Hypertrophy occurs oftener in mania than other forms of insanity. Mickle has classified the mental symptoms associated with various cardiac lesions, but Greenlees believes we are not yet justified in ascribing one symptom or set of symptoms to each lesion. Those found with lesions of the right side of the heart suffer from restlessness and excitement, while those with the left side affected have suspiciousness followed by depression and dementia.

Arguing on similar lines, Potaine (*Jour. Am. Med. Assn.*), finds that neurasthenic patients may have low arterial tension. In which case they are improved by rest and tonics. Others suffering at the same time from symptoms of gout, uricæmia, alcoholism and diabetes, who show excess of tension, are cured by all that favors the elimination of toxins, such as proper exercise, lacto-vegetarian diet and diuretics.

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THE SHOE-LEATHER CURE.

E. C. Norris, who is now due in this city from his tramp of 3,000 miles, has worn out sixty-one pairs of shoes and has good reason for congratulating himself on his extraordinary use of shoe leather.

When Mr. Norris, twenty-six months ago, started on his long tramp from San Francisco the doctors told him he had consumption. At the end of it he finds himself a well man, with increased weight, good digestion, firm muscles and clear brain. His worn-out shoes are so many mile-stones scattered along the road to health and happiness, and his bill for shoe leather and the loss of two years' time are more than balanced by his possession of a blessing which is without price to one who has lost it.

Mr. Norris's long walk, it is to be hoped, will induce others to try the shoe-leather cure. But don't wait till consumption or wasted health makes other remedies useless. Wear out your shoes while you are well and let Nature, with all her blessed influences of sun and air and health, keep you on the highway of happiness. One pair of shoes worn out in prevention is better than sixty-one worn out in cure.—*N. Y. World.*

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EFFECT OF BEER ON LONGEVITY.

Professor Pfluger, University of Bonn, in a recent lecture on longevity, asserted that the average of human life is steadily increasing. He also maintained that beer and tobacco were responsible for one-third of all the deaths registered in Munich as due to heart disease

Wine he considers the "milk of old age." Among forty centenarians who came under his notice there was only one smoker, while nearly all professed to a moderate use of alcohol.

BEER AND CANCER.

Dr. Alfred Wolff (*Nineteenth Century*, June), calls attention to the alarming increase of cancer, which he sums up statistically. All the districts where there is high cancer mortality, he finds are districts in which beer or cider is largely consumed, and he suggests that the increase of cancer has some direct relation to increased consumption of beer. In Bavaria, which heads the cancer list in Germany, more beer is consumed per head than in any State in the world. In France in beer-drinking districts the cancer mortality rate is high; in the wine-drinking districts it is low.

Dr. Wolff offers no convincing explanation as to the association of cancer with beer drinking, but he thinks it may be traced to the entrance of something through the water from which beer is made or perhaps from the malt itself.

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DON'T JUMP OUT OF BED—AND WHY.

Among the many instructive articles in the current number of *Medical Talk* the following solemn scientific advice is interesting to read.

Don't jump up the first thing your eyes are open. Remember, that while you sleep the vital organs are at rest. The vitality is lowered and the circulation not so strong. A sudden spring out of bed is a shock to these organs, especially to the heart, as it starts to pumping the blood suddenly.

Take your time in getting up. Yawn and stretch. Wake up slowly. Give the vital organs a chance to resume their work gradually.

Notice how a baby wakes up. It stretches its arms and legs, rubs its eyes and yawns and wakes up slowly. Watch a kitten wake up. First it stretches out one leg, then another, rubs its face, rolls over, and stretches the whole body. The birds do not wake up and fly as soon as their eyes are open; they shake out their wings and stretch their legs—waking up slowly. This is the natural way to wake up. Don't jump up suddenly. Don't be in such a hurry. But stretch and yawn and yawn and stretch. Stretch the arms and the legs, stretch the whole body. A good yawn and stretch is better even than a cold bath. It will get you thoroughly awake, and then you will enjoy the bath all the more.

Wake up like the baby, like the kitten. Stretch every muscle in your body. Roll over and yawn and stretch, and stretch and yawn, and you will get up feeling wide awake and the heart and the lungs and the stomach will resume their work without shock or jar, and the bodily functions start off in a normal, healthful manner.—*Exchange.*

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NURSES WITHOUT CAPS.

There are several features of interest about the nursing at the Wilhelmina Gasthuis in Amsterdam. The uniform of the nurses in the great municipal hospital is dark blue and a white apron with shoulder straps. Those who have passed their third year's examination are distinguished by a white brooch in the form of the Maltese Cross, but otherwise the head nurses and the juniors are similarly attired. Caps are worn by the wardmaids, but not by any of the nurses. We prefer the English custom. A feature in the long wards is an upright piano, and one of the nurses frequently sings or plays for the patients at quiet times. The nurses are on duty for eleven hours in a day, and there is an average of one nurse to four patients. It cannot therefore be said that their work is lighter than that of nurses who are employed in many hospitals supported by voluntary contributions.

AMERICAN SUPERINTENDENTS OF TRAINING SCHOOLS IN CONFERENCE.

An extremely interesting feature of the annual Convention of the American Society of Superintendents of Training Schools this month, whose proceedings are summarized in another part of the Gazette by one of the members, was the number of nursing appliances shown and explained by nurses from the schools represented. Among the practical suggestions made by the authors of the various papers read was one by Miss Goodrich, who, dealing with "Points of Weakness in Hospital Construction," urged that these might often be diminished if the superintendents of nurses were more frequently consulted by those responsible for the plans of hospital buildings. Mr. Frank Miles Day, an architect of Philadelphia, subsequently treated this subject, and answered many questions which were raised by his hearers. The next Convention is to be held at Washington in January, 1905.

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BIOPLASM.

The name sounds well, and the idea conveyed, that is, of life-building plasma or material, is becoming foremost in the minds of the most advanced physiologists and therapeutists of to-day. The former idea of drug antagonists and drug antidotes is being slowly abandoned. Medical writers dwell more and more on the desirability and scientific possibility of *physiological* remedies, agencies and substances that build and support rather than tear down and deplete—the one anxious search being for *food* medicines, since the word medicine includes the entire curriculum of nutrition and all the processes of metabolism.

This study is not essentially new, and shows no tendency to become a transitory fad. This makes it all the more promising in the direction of its permanency.

But it is not all promise, hypothesis and speculation. Some positive results are becoming apparent.

One of the most notable of these is the preparation whose name heads this article. It has quietly asserted itself and earned a reputation on its scientific merits rather than on advertising exaggeration; and between these two agencies there is a world of difference.

Department of Physical Education.

WITH SPECIAL REFERENCE TO KINESITHERAPY—PHYSICAL THERAPEUTICS.

"All the medicine in the world cannot be substituted for exercise."—TISSOT.

Edited by G. H. PATCHEN, M.D.

RESPIRATION AS A REMEDY.

EVERY one, in these days in which so much interest is manifested in all matters pertaining to health, understands how respiration promotes healthy conditions, but very few comparatively are able to comprehend how this function can possess sufficient curative power to render it a reliable and effective remedy for many severe and distressing forms of chronic disease. But such is really the case, and we of this age and generation are very slow in rediscovering it. I say rediscovering, for the fact was known to the Chinese over two thousand years before the Christian era, and under the name of Cong Fou rules for its practical observance were formulated which are still on record.

How the Chinese, with the imperfect knowledge of anatomy and physiology which they were believed to possess, ever made this important discovery is a mystery so difficult to explain that no attempt to do so will be made. Their theory of the manner in which the curative results were produced has little or no foundation, in fact, but it afforded a working hypothesis which was practically successful.

With the more accurate knowledge of the mechanism of the various functions of the body and the manner of their operation which we possess, we are able not only to give a rational explanation of the curative effects which may be produced by respiration but to extend the scope of its usefulness.

Viewed from the standpoint of health, respiration is found to be inseparably associated not only with every process of nutrition, but with every action put forth by the body or mind. It automatically supplies the blood with the varying and irregular amount of oxygen demanded by the system for exercise, growth and repair. In the abdominal form—the only form normal for every individual, regardless of sex, age or environment—it bestows upon the digestive organs a rhythmic motion which, from their conformation, they are especially adapted to receive, and which is indispensable to the full measure of their activity. It affords distinct and powerful aid to the heart in its ceaseless effort to force the blood through the circulatory channels by means of the suction or lifting influence the respiratory excursions of the diaphragm exerts upon the venous circulation, at the center of the body, where the vessels are the largest and their contents are the heaviest. It is the same tractive or lifting force that holds the abdominal and pelvic organs in their respective positions in opposition to the action of gravity, which, unopposed, would compel them to settle down upon each other in a compact, immovable mass, prevented by their own weight and pressure from performing their important functions.

Although the medical profession, if not the world at large, has known for years that, in health, respiration is the factor which, more than any other, promotes and maintains the integrity of the several important functions just mentioned, it was not until the true relation that exists between health and disease was discovered that any practical use of this knowledge, in a remedial way, became possible. But as soon as, by study and investigation, we were able to comprehend two fundamental facts—first, that health and disease both result from the action of the very same organs and functions, the only difference between them being the degree of activity, power and regularity with which, in each instance, this action is performed; and, second, that as chronic forms of disease are always states or conditions due to imperfect vital action—a failure on the part of the system to carry forward physiological processes to a degree sufficiently perfect to result in health, and, therefore, that it is not the influences affecting the body from without, but the manner and degree of the action of the vital processes themselves which are the essential or real cause of disease and which constitute the main object to which remedial effort should be directed, when we report, these two facts are clearly comprehended, then we are prepared to understand that the cure consists in the restoration of vital action to the normal degree of vigor and power.

But so accustomed have the majority of us been to thinking and believing that the extraneous or exciting causes of disease are the only ones to be combatted and that in this battle for health the system needs the assistance of some substance, introduced from without, which is more or less foreign to its requirements in health, that we are unable to comprehend and accept the simple but fundamental facts regarding disease and its cure above stated.

What a furor, both in medical and lay circles, would be created, and what fame, wealth and renown would accrue to its discoverer, should some drug be found which, if swallowed in some prescribed way, would produce the very results that the diaphragm unconsciously performs in its never ending task of supplying the system with oxygen. And yet a greater remedy than such a substance could possibly be, greater because it is capable, by cultivation, of almost unlimited power, is constantly at our command.

Search as we may for a remedy which may be uniformly depended upon to promote vital processes and functions in the manner desired to make them efficiently remedial, nothing will be found that will equal the respiratory rhythmic motion caused by the abdominal form of respiration. The secret of its power lies in the fact that it is not only intimately connected with all vital functions but is a natural incentive to their activity and exercises a dominating influence over them. Indeed, so intimate are the relations between respiration and vitality that the state of the one may be taken as an accurate index of the state of the other.

It is not the province of this article to enumerate all of the diseased conditions which may be effectually remedied by proper methods of respiration and to illustrate its practical application in each instance, but, rather, to call attention to this superior process with which Nature has endowed every individual—a process which affords the ounce of prevention as well as the pound of cure—and to establish its relevancy and efficiency as a therapeutic agent for the successful treatment of all chronic affections which, irrespective of their name or locality, originate in defective function of the processes of either circulation, digestion or assimilation.

The subject of the remedial power of respiration to which attention has been directed in this department, calls to mind the statement made several years ago by an Indian Swami, that the breath is normally taken through only one nostril at a time, each nostril being used alternately, and that, in health, the breathing changes from one nostril to the other about every two hours. He also stated that in illness the breath remained in the same nostril for hours and even for days without change.

These statements, if correct, are both curious and interesting for evident reasons.

It occurred to the writer that there might be many readers of the GAZETTE who would be willing to help decide the truth or falsity of the matter by making an accurate personal test and reporting the results in detail to the editor of this Department. What do you say? Don't all speak at once; the effect might deafen that functionary. Just drop him a line giving your experience, and when the count is all in the result will be tabulated and published.

* *

PROCEEDINGS OF THE NEW YORK MEDICAL GYMNASTIC AND MASSAGE SOCIETY.

THE stated November meeting was a very interesting one, chiefly on account of the unanimous decision to establish a daily clinic for the treatment of such cases as properly come within the field of massage and curative exercises. A more extended notice of the object and aim of the clinic will be found in another column of this Department.

Among the medical topics discussed was that concerning the best manner of treating sciatica. The discussion was quite general. Many interesting cases treated were reported, together with the method of treatment that proved most successful in each instance.

We regret that the remarks of only two who participated in the discussion have reached us for publication.

MR. HERMAN SPECK said:

"In the treatment of sciatica, in chronic as well as in acute cases, I have found that hot fomentations are most effective, and have, in some cases, given immediate relief. The hot applications are repeated until the patient gets into a thorough perspiration, then they are followed with applications of alcohol and mild stroking massage and vibrations."

MR. JACOB BOLIN made the following report:

"I do not know that I have to relate any new experiences from the past year. Still I have had a few cases that have been interesting to myself, and which may be suitable to report:

Miss O. S., 26 years, consulted me a year ago last spring. She had always been delicate, and had suffered more or less constantly from indefinite digestive disturbances; at one time had gastritis; was habitually constipated; had off and on some bleeding at stools; had two fissures in ano, from which she thought most of her trouble came, and which had been treated several times locally by different physicians without avail. Menses were regular and normal. Frequent leucorrhœa. All this from her own statement. Appeared decidedly anæmic; weight 95 pounds; considerable enteroptosis.

"I sent her to a physician, who found hemoglobin 67 per cent., the fissures as related, enteroptosis, slight uterine displacement, not sufficient to warrant special interference.

"It being at the end of the season, I told her I could do little in the time at my disposal; advised her coming in the following autumn to go through several months' protracted treatment. She came in October and stayed with me till the beginning of May, I think. I gave her general treatment, in which a great deal of respiratory movements, mainly passive, were used for the thoracic respiration. Locally I treated the constipation by abdominal movements and massage. Gave also sacral percussion, and some perineal vibration, but not much of either.

"When she left, hemaglobin was 85 per cent., constipation was conquered, leucorrhœa had not appeared for two months, the abdominal wall was firm, the viscera were higher but not normal, and, what I consider most interesting, the anal fissures were healed. Weight had increased only slightly, to 101 pounds. She felt well and was happy.

"I have long wished to try my hand at some ununited fractures. A surgeon of my acquaintance kindly sent me a case during the past year, which I wish to relate, though it was a failure.

"V. M., a laborer, age about 30, had sustained a compound fracture of the forearm, with so much laceration that the first attending surgeon wished to amputate. The patient refused assent, and insisted on a more conservative method. External wounds healed normally, but the radius did not unite. Operation to ascertain if intervening tissue prevented gave negative result. The bony ends were scraped and immobilized, but still no union, not even fibrous. The arm was encased in a leather jacket. The hands became somewhat œdematous, greatly cyanotic, with limited motion, and decreased sensation. I removed the bandage the first time without attempting to prevent motion at the point of fracture. Tried, in fact, to irritate the bony ends by rubbing them together. At the following occasions, care being taken to keep the ends in as close apposition as possible, I applied rapid vibration over the whole forearm, but especially to the fracture. Gave also some massage to hand, upper arm and shoulder. Cyanosis disappeared and swelling decreased the first time. Patient grew very hopeful, and I had some trouble in toning down his enthusiasm. The appearance the following day was excellent. Mobility and sensation grew better. But as I found at least a quarter of an inch distance between the bony fragments, I concluded that the bone had degenerated to such an extent that there was little hope of renewed growth and I sent him back to the surgeon for consultation, advising new operation, with suture. This was done, I know not with what results.

"The man was in splendid physical condition, no syphilis, no malaria. It seems to me the only possible reason for non-union was a too great loss of substance.

"R. H. McC., sent by physician, with history of rheumatism. Complained of pain in ball of the foot and heel. I could detect nothing abnormal in the foot. Applied dry heat and massage and general gymnastics. Slight decrease in pain immediately after treatment, but improvement was not sustained. Patient left disgusted after a little over two weeks. This spring he came up to me with a smile on his face; told me he had been to Europe, and in Paris had visited Metzger, who had said there was a dislocation, subluxation, or something of the kind. The patient pointed out a place a little below the internal malleolus. Metzger adjusted it and gave massage for three weeks, the patient being cured.

"Miss —— (name forgotten), a large woman of about 30 years, in my class at Chautauqua a year ago last summer. One day I told her that she must be careful, as her feet showed signs of weakness. The left forefoot especially was not a little everted, and had a slight though noticeable abduction of the fore part. She then told me she had observed a growing tendency to fatigue with some slight pain. I took her to our clinic. Diagnosis was made by the attending physician of flat feet. We applied massage and suitable resistive and active movement. The foot improved so that she could go on with the hard gymnastic work of the normal class. I saw her again this summer, and on my question as to the condition of the foot, she replied that it had begun to bother her again, and the discomfort had grown until she, upon the advice of friends, and after having worn plates for a couple of months under the advice of her physician, sought a bone-setter who has a considerable notoriety in the vicinity. He claimed there was a dislocation of one of the metatarsal bones, 'pressed it in place,' she 'heard the click,' put on a bandage, had her visit him three or four times, and she had since been well.

"Examination showed low arch, slight eversion, but no abduction!

"As to the treatment of sciatica, I wish to say that I rely more upon forcible tension than upon massage, and have always had very good results. I give this tension in a number of ways, and always instruct the patient in some measures by which he can do part of it at his home several times a day. I just read with some astonishment to-day, in the *Archiv für Orthopädie, Mechanotherapie und Unfallchirurgie,* an article by a German physician as to this tension, in which he says the method is little in use, and claims some improvements in it, while I have seen his methods—and better ones, too —in use now for more than twenty years and have used them myself.

"I also wish to state that I have never, in cases of sciatica, attended to the bowels except when there has been a definite history of constipation. But as constipation frequently is an etiological factor, I can easily see that when the nerve is irritable it is probable that better success might be gained if attention were paid to the matter even in cases in which it is not the chief factor. I shall in my future cases act upon the suggestion given here this evening."

IMPORTANT ANNOUNCEMENT.

The New York Medical and Massage Society desire to announce that they have established a clinic for medical gymnastic or massage treatment. Suitable rooms have been secured on the first floor at 210 East Forty-first St., just east of Third Ave., a location easily reached from all parts of the city by transfers on either surface or elevated car lines.

Treatments will be given daily from 11 A. M. until 3 P. M., *Saturdays and Sundays excepted,* under the supervision of an official staff appointed by the Society. This staff is composed of both physicians and masseurs. No treatment will be given except by members of the Society, a sufficient number of whom will be present at each clinic hour. The same members will be present at the same hour each day, so that every patient will be treated by no one but the member to whom his case was first assigned. Should a physician desire to have any patient he may send for treatment placed in charge of any particular member of the Society who, at the time, may not be on regular duty at the clinic, an effort will be made to so arrange it.

In order to provide for the maintenance of the clinic, in its essential expenses, patients will be charged an amount ranging from 25 cents, minimum, to 75 cents maximum, for treatment, according to their ability to pay. The staff and operators will give their efforts and time without remuneration. All receipts, either in fees or contributions, which may at any time exceed the amount necessary for current expenses will be devoted to increasing the facilities of the clinic. The editor wishes to add that he is personally acquainted with all of the officers and members of this Society and does not hesitate to assure all who may be interested by this announcement that no better operators can be found in the city; that the undertaking has been thoroughly planned and will be carried out in the most able and satisfactory manner.

So far as we can learn this is the first clinic of the kind established in this country, and we wish it and the Society which inaugurated it the greatest success.

* * *

"Many men have fads," said Mark Twain, the other day. "Some collect one thing and some another. Among the most curious is that of a man near my summer home at Elmira who has a collection of snakes. They are of many varieties. The man who has them thinks a great deal of them, and in fact would not take anything for them. The other day, however, his physician told him that if he did not take something for them he would die."

WHAT MARY HAD.

Mary had a little lamb,
  Likewise an oyster stew,
Salad, cake, a piece of pie
  And a bottle of pale brew—
Then a few hours later
  She had a doctor, too.
—*Chicago News.*

* * *

Trained Nurse

THE AMERICAN SOCIETY OF TRAINING SCHOOLS FOR NURSES.*

The tenth annual convention of the American Society of Superintendents of Training Schools for Nurses, which was held in Pittsburgh on October 7th, 8th, and 9th, was both stirring and interesting. It was preceded by a convention of the Pennsylvania State Nurses's Association, the members of which remained by invitation to attend some of the sessions, so with a good representative number of the society itself a large body was convened.

The meetings were held in the Shenley Hotel, where many of the visiting members were staying.

The first meeting was called to order at 9.30 A.M. on Wednesday, October 7th, with the President, Miss Ida F. Giles, in the chair. The opening prayer by the Rev. Bishop Whitehead was followed by addresses of welcome from the Rev. Maitland Alexander, President of the Board of Trustees of the Allegheny General Hospital, and Dr. J. H. McClelland, chief surgeon of the Homœopathic Hospital. Responses to these addresses were made by Miss Snively, of the Toronto General Hospital, and Miss Maxwell, of the Presbyterian Hospital, New York.

Reports from the various officers and committees were then submitted, after which the President gave a short address, mentioning many things which had been accomplished by the Society, and urging still greater efforts in the future.

Recreation for Nurses.

Papers were next read upon the subject of the study of current events as a means of recreation for nurses, by Miss Jane Delano, of Bellevue Hospital, New York, and Miss Jennie Cottle, of Minnequa Hospital, Pueblo.

A short discussion followed these papers, and it seemed to be the consensus of opinion that classes for such study should exist in all training schools, and could be so arranged and conducted as to be extremely interesting and often entertaining. At the subsequent discussion it was mentioned that there were golf links for the nurses at the Minnequa Hospital and also saddle horses for their use.

The second session was called on Thursday morning at 9.30, and after the report of council twenty-three candidates were elected to membership.

The appointment of the Nominating Committee and the report of auditors followed. Miss Nutting called the Society's attention to the financial deficit and consequent impossibility of offering further assistance to the maintenance of the Department of Hospital Economics at Teachers' College, Columbia University, New York. A report from the Publication Committee showed a debt for publishing the transactions of the Nursing Congress at Buffalo, copies of which had not all been sold.

A report from the Superintendent of Army Nursing, Mrs. Dita Kinney, told of the development of that branch of the work, its improvements, and general condition at present.

Education of Nurses.

Miss Nutting presented to the Society a statement concerning advances made along educational lines relating to nurses' training, conspicuous among these being the establishment of courses of study and training in Domestic Economy and other subjects, preparatory to hospital work, in Pratt Institute, Brooklyn, N. Y., and Drexel Institute, Philadelphia, and some others throughout the country. Also a change in the preparatory course at Simon's College, Boston, Mass., all being quite significant of the growing interest and recognition of the true importance of nursing in other educational institutions. Miss Nutting suggested that a Committee on Education be created, which should follow up the improved methods of instruction adopted in various schools of nursing or in preparation for such work, and all movements which would tend to establish better and more thorough education for nurses, and keep the Society informed on these matters. Later the committee was formed.

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* Reported by a member.

Nurses' Salaries.

As the non-payment system, in operation in many schools, bears so directly upon this subject, it was introduced as a topic of discussion, and several superintendents who had tried both plans—that of giving an allowance of perhaps ten dollars per month and allowing the pupils to furnish their own uniforms and text-books, or of doing away with the allowance and supplying these articles at the hospital's expense—gave their comparative experiences. It was shown that a nurse's expenses are about one-third of such an allowance, and it was urged that it would be a wiser expenditure of this really large sum which remains after supplying uniforms, etc., to use it in providing salaries for more instructors, better facilities for carrying on the general work of the school, and in maintaining a larger staff of pupils, thereby shortening the hours of duty and favoring broader education, than to have it wasted, as far as the school as an institution is concerned, in spending-money for the individual.

Miss Burdett's paper giving a detailed description of "The New Lying-in Hospital, New York," was read by Miss Nevins. It dealt particularly with the heating, lighting, and ventilation of this beautiful new building which stands as a model of a modern hospital. Photographs of different parts of the hospital and mechanical contrivances in operation were handed about, giving still clearer ideas of the plans and fittings.

Hospital Construction.

Miss Goodrich's paper on "Some Common Points of Weakness in Hospital Construction" showed how frequently hospital equipments which would greatly facilitate the work of the nurses and conduce to more perfect sanitation, were omitted, and also the inconvenient situation of many work- or store-rooms in relation to the wards themselves. Miss Goodrich suggested that if the superintendents of nurses were more often consulted by those entrusted with the construction of hospital buildings, these difficulties might often be obviated.

The reading of Miss McKechmie's paper on "What has been Done in the Way of Legislation," was followed by the formation of a committee to frame a standard of education which should be recognized as presenting to applicants for State registration the minimum requirements for eligibility specially with regard to:

1. Entrance requirements to schools of nursing with definite minimum requirements.

2. A definite course of study with minimum of subject, time to be devoted to theory and practice, and minimum length of course of training.

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NEW INSTRUMENTS.

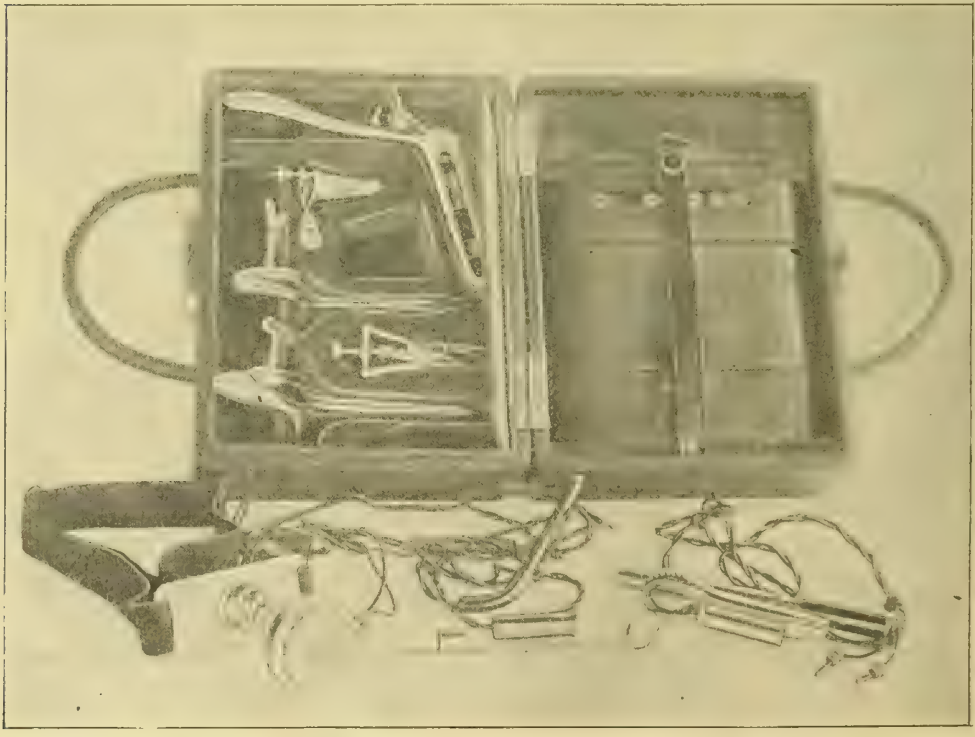
Along with the rest of the electrical advances and improvements there has been great activity in the line of improved appliances and apparatus for the use of physicians and surgeons. New forms of batteries, complicated coils, transformers, interrupters, condensers, modifiers, motors and what not—all these have multiplied until the novice is bewildered in making a selection.

Perhaps the most notable improvements have been made in connection with apparatus for illuminating blind cavities and doing away with the Darkest Africas of human anatomy. The first devices offered were either crude or too fragile and short-lived to meet the requirements of practice, especially from an economic point of view. Many of those still freely advertised are of little practical value for the same reason. They fail the busy practitioner just when he most needs their aid, and always at a time and place when and where repairs, readjustments or a new cell are out of the question.

The accompanying cut illustrates one of the latest, most perfect and complete of these helpful devices yet offered. It is as ingenious in design as it is comprehensive in detail. It contains within the convenient compass of a leather-covered case 5 by 6½ by 8¾ inches, a detachable inner case containing a battery of four dry cells so small in compass and so conveniently encased that they can be readily carried to the bedside in an ordinary coat pocket, yet so efficient that it will maintain a brilliant headlight or either of two other lamps supplied with the instrument. These four cells, in connection with a very ingenious rheostat, give a combined capacity of over 6 volts and 12 milli amperes. This is sufficient to support a rather more than one candle-power lamp for six hours, which, as will be readily seen, is ample for a large number of explorations or examinations, none of which, as a rule, require more than a few minutes illumination at most. The case as a whole contains a complete assortment of speculæ—vaginal, rectal, nasal, ear, and throat, with tongue depressor and mirrors for the throat and nasopharynx, each with lamp attachment, for thoroughly illuminating the cavity or tissue to be examined or treated. This complete, or "special," case is for the use of the general practitioner. Other forms are arranged for the needs and conveniences of specialists, whether gynecologists, repairers of rectums, or those who give their attention to diseases of the eye, ear, nose and throat.

It is in its line at once the most complete, compact and comprehensive instrument of which we have any knowledge, and we have used all the leading ones that the market has afforded.

It is manufactured by the Electrical Specialties Company of No. 188-190 Greenwich St., New York.



Book Reviews.

THE EXACT SCIENCE OF HEALTH, based upon *Life's Great Law.* By Robert Walter, M.D. Vol. I., *Principles.* New York, Edgar S. Werner Publishing Company, 1903.

Rather an ambitious title, but written by an unquestionably and unconquerably ambitious man.

Dr. Walter's name is not unknown to that portion of the public given to the reading of health journals, especially if they note the advertising pages of the same.

Our author has built up from almost nothing an extensive sanitarium business. This argues a species of genius—that form of genius recognized as business success. It does not logically follow that the doctor who directs the extensive and flourishing institution at "Walters Park, Pennsylvania, U. S. A.," has discovered either the philosopher's stone or the elixir vitae. Dowie and numerous other fakirs and monomaniacs, if judged by this test, have succeeded even more extensively.

This volume is to be followed by another, which, according to promise, is to be a key to this one. In other words, this volume lays the foundation, and evolves the principles on which will be based the real revelation and gospel of healing.

When any one but a full-fledged genius nowadays essays to say something new in relation to either science, art or religion, healing, hygiene or humanitarianism, he is accounted ambitious to the verge of audacity. Dr. Walter will not be able to escape the ordeal by which the work and word of all such venturesome spirits are inevitably and not always charitably examined.

Only an extended review of this volume in detail would be adequate to give our readers any fair idea of its claims and of their attempted substantiation. For such review we have not the space at command, and must for the present content ourselves with a perfunctory enumeration of the topics treated.

There are four pages of the initial "argument" which we think would be more forcible and convincing if it were more modestly stated. Chapter I. is devoted to *Suggestions for an Exact Vital Science.* This would seem to an outsider a much more appropriate title for the entire volume. Chapter II. undertakes to define *The Constitution of Nature,* a task which has baffled the efforts of all the alchemists, metaphysicians, mystics and scientists since time began. Chapter III. discourses of *Causes and Occasions and their Relations.* Chapter IV. treats of *Transmutation Fallacies.* Chapter V. advances to the more ambitious and more hopeless task of explaining *Vital Science in its Relations to Philosophy,* Herbert Spencer and his theories coming in for the lion's share of criticism. Chapter VI. proceeds with *Life: its Nature and Source,* following which Chapter VII. announces *Life's Great Law,* and undertakes to show its analogy with the law of gravitation. Following chapters treat of *Life's Secondary Laws; Social and Scientific Paradoxes; Health and Disease: their Nature and Work; Good Health: How to Regain and Maintain It; The Vital Reservoir, and How to Fill It; Vital Development, and How to Secure It; History of These Discoveries; Some Salient Features of Medical History; Sanatory Medicine: its Truths and Errors,* and *Summary and Conclusions to Vol. I.,* to which is added an Addenda of ten pages devoted to Diphtheria and Pneumonia, their nature and treatment.

No intelligent reader will lay down this book without having been both stimulated and provoked to think, and thinking is the source of all progress, whether it be in matters of health, politics or religion.

THE PHYSICIAN'S POCKET ACCOUNT BOOK. By J. J. Taylor, M.D. Philadelphia, The Medical Council.

Among the many candidates for the favor of the busy physician this one stands alone in the claim of labor-saving, legality and convenience. It is as it aptly states the physician's complete financial record. All that we said of these essential characteristics last year are quite as true of this year's edition. It is not over-bulky, it is neatly and durably bound, and it contains all the printed data that the busy doctor cares to carry with him on his daily rounds, without burdening him with any extra bulk of seldom-used matter.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. Carl von Noorden. New York, E. B. Treat & Co., 1903.

These treatises are issued in three thin volumes, Part I. treating of *Obesity* and *The Indications for Reduction Cures.*

Prof. von Noorden, in connection with his pupils and assistants, has been for many years pursuing an exhaustive study of the disorders of metabolism and nutrition. These monographs have been issued as a compend of conclusions arrived at on the themes treated, and while they do not attempt to include dietetic details, leaving these to the judgment and invention of every practitioner for himself and for adjustment to the needs in each individual case, they supply a basis or groundwork for a better understanding and a more rational management of these cases than has yet prevailed.

In relation to the subject of obesity it is made evident that the routine adoption of this or that "system" of diet is no better than guesswork as to its rational treatment.

Part II. is devoted to *Nephritis.* On this topic von Noorden does not hesitate to disagree with accepted authorities and approved text-books. For one thing he dwells on the principle of saving the kidneys in renal diseases by what he terms protective therapy. He leaves no doubt in the minds of the reader as to the evil effects of alcohol on the kidneys, whether taken in concentrated form —whiskey, brandy, etc.—or dilute as in ales, beer, wine, etc.

Part III. is devoted to *Membranous Catarrh of the Intestine* (*colica mucosa*) *and its Treatment.*

Like the other two, this volume, small as it is, is full of valuable suggestions to those who desire a comprehensive knowledge of this all-imporant subject of metabolism and nutrition.

THE BAKER'S BOOK, *a Practical Handbook of the Baking Industry in all Countries,* profusely illustrated in two volumes. Translated and edited by Emil Braun. New York, D. Van Nostrand Company, 1903.

These volumes are unique in literature in that they treat of a subject concerning which very little is available to the general public. Not that there is a real dearth of works devoted to the baker's art. but most of them are inclined to be too technical or too much like mere recipe books. The principal aim of the work is to be practical, and its author and translator, while disclaiming entire originality, have made a wise selection of the best ideas of all the previous works on the subject.

Among other contributors, the Agricultural Department at Washington has supplied valuable information for its pages.

So vitally important is the art of the baker that its progress is an index of the progress of civilization. Every progressive baker will be glad of a chance to avail himself of these valuable volumes.

THE MICROSCOPICAL EXAMINATION OF FOOD AND DRUGS. A PRACTICAL INTRODUCTION TO THE METHODS ADOPTED IN THE MICROSCOPICAL EXAMINATION OF FOODS AND DRUGS, IN THE ENTIRE, CRUSHED AND POWDERED STATES. By Henry George Greenish, F.I.C., F.L.S., with 168 illustrations. Price, $3.50 net. Philadelphia, P. Blakiston's Son & Co., 1903.

There are many botanical textbooks to aid in the study of the histology of vegetable substances, but so far as we know there is not, or has not been until now, a single work, at least not in English, that treats directly of the methods of examining vegetable foods, drugs and their powders. This volume undertakes to supply this want, and it succeeds in its attempt.

The work is divided into twelve sections.

Section I. treating of *Starch,* Section II. of *Hairs and Textile Fibres,* Section III of *Spores and Glands,* Section IV of *Ergot,* the remaining eight sections covering *Woods, Stems, Leaves, Barks, Seeds, Fruits, Rhizomes* and *Roots.*

The execution of the work leaves little to be desired. The illustrations are artistically excellent. Some of them are as suggestive and entertaining as pictures in fairyland. The paper is exceptionally fine and the presswork and binding are creditable to the publishers.

NOSE AND THROAT WORK FOR THE GENERAL PRACTITIONER. By George L. Richards, M.D., Fellow American Laryngological, Rhinological and Otological Society; Fellow American Otological Society; Associate Editor Annals of Otology, Laryngology and Rhinology; Otologist and Laryngologist Fall River Union Hospital, Fall River, Mass. Price, $2.00. Published by the International Journal of Surgery Co., New York.

This book derives especial importance from the fact that the diseases described therein constitute so large a share of the physician's daily routine of practice. It has been the author's aim to teach the practitioner how to diagnose these cases and how to treat them successfully and according to modern methods. With this object in view every effort has been made to describe the treatment in such detail as to leave no point obscure, and to simplify the technics as much as possible so as to avoid the necessity of an elaborate and expensive armamentarium. No space is occupied with theory, and the information given is based for the most part upon the author's own extensive clinical experience in diseases of the nose and throat. For the sake of completeness a number of conditions are discussed which properly belong to the specialist, but with these few exceptions the diseases described are such as can be treated by the general practitioner. A noteworthy feature of this work is the large number and excellence of the illustrations.

Each of the twenty-six chapters of the work is replete with terse and practical directions, familiarity with which will render the general practitioner competent to treat this prevailing and persistent class of diseases.

IKE GLIDDEN IN MAINE: A STORY OF RURAL LIFE IN A YANKEE DISTRICT. By A. D. McFaul. Illustrated. Boston and New York, Dickerman Publishing Co., 1903.

Ike Glidden is a character and Maine is a country, as many of us realize every season during vacation time. Given a character and a country, why not thereby hang a tale? There is no effort at the marvellous, the hifalutin or the literarily sensational in this book. Ike wends and works his way in the most natural fashion, but without for a moment slumping into the ranks of the namby-pambies. It is good reading for a summer vacation time and it is good reading for a winter evening, when one is tired of more serious literature.

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Notes and Queries.

Query 162. I read a number of medical journals, and have carefully noticed what they have published concerning the treatment of malignant growths by the X-ray; but the decisions arrived at by different authors is very confusing, for the reason that it is inconsistent if not positively contradictory. I have a near friend who is afflicted with carcinoma of the breast. I am asked to advise her whether to submit her tumor to the action of the X-ray, and I confess that I have hesitated to recommend it. Can you give me some practical suggestions in the case?

L. T. M., Va.

Answer.—Our observation of the X-ray treatment, corroborated by some personal experience and a consensus of the heterogeneous and unsatisfactory literature yet available warrants us in saying this, that when the system has not become thoroughly or extensively infiltrated or impenetrated with the cancer virus, germ or taint, whatever that may be, the X-ray is up to date the most promising treatment known. After extensive involvement of the axillary glands the prognosis is, of course, very much less favorable; but even then the discreet use of the X-ray generally palliates all the severer symptoms, lessens suffering and prolongs the life of the patient.

In some cases it is better to remove the diseased mass, together with as many of the affected glands as possible, and as soon as the wound has healed to follow with the X-ray to prevent a recurrence.

We, however, place emphasis on the word "discreet" in connection with the treatment, since many operators have failed of good results from either carelessness, ignorance or want of readily controllable apparatus.

Query 163. What is health? In other words, how is any individual to know when he is perfectly healthy? P. G. H.

Answer.—Perfect health is one of those things that, like perfect truth, or perfect love, is very hard to define. It is because things of this kind in this imperfect world are all comparative. Your question is therefore a physiologic conundrum. No two authorities will be found to entirely agree in their definitions.

With a good many it means to eat "three square meals" a day and to snore moderately at night. With others it means regularity of the functions and a fair degree of impunity in the presence of lobster salad and mince pie, with no serious reaction from half a dozen ponies of Bourbon and ten or a dozen cigars every twenty-four hours. With still others it means that there are no immediate physiologic "rucktions" after late meals, late hours and repeated over-indulgence in every direction.

The classes and variants might be indefinitely multiplied.

So much depends upon the standpoint, education and prejudices of the subject or questioner.

In general a healthy man should be free from physical, physiological and psychic frictions and discordances. He should be free from aches, pains and worriments. He should be mentally well poised and cheerfully disposed. He should be imbued with a reasonable ambition, and should have all his powers of body, mind and soul constantly and pleasantly employed. Cares he may have, for cares are a normal heritage, but they must not be allowed to canker. He must live well, and work well, and love well; for if he accomplishes these three fundamental ends he must certainly be happy, and happiness is the talisman and open sesame to health.

Query 164. Does the editor of Notes and Queries favor the use of uncooked food—that is cereals, fruit and vegetables?

A. B. M., N. Y.

Answer.—Not for general use by the present race of perambulating bipeds. We have been too long in process of evolution toward baking, roasting, steaming and frying to warrant any such radical change. Our grandfathers, the apes, no doubt thrived well on raw roots, nuts, shucks and all, and fruits as they found them on the trees or vines. We are not apes.

Query 165. Do you advise the cold morning bath as universally desirable and in all cases safe? J. C. L., Texas.

Answer.—Yes; but in some cases of hypersensitiveness and semi-invalidism it is necessary for the "cold" item to be modified or gradually introduced. Almost every one can soon learn to delight in the tonic and refreshing effects of the cold bath. The dread of it is babyish and groundless.

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